# NAVAL POSTGRADUATE SCHOOL
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# THESIS

## INTEGRATED PRODUCT TEAM IMPLEMENTATION AND LEADERSHIP AT THE PROGRAM LEVEL

by

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December 1996

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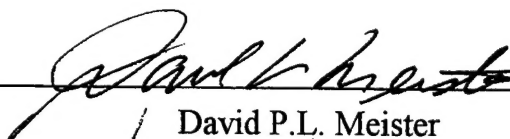of the requirements for the degree of

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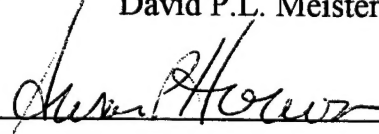
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# ABSTRACT

This thesis presents exploratory research that investigated how integrated product teams at the program office level are being implemented in response to Department of Defense policy. Research data were gathered by conducting interviews with twenty participants from three teams representing two program offices. Interviewees were queried about their experiences with integrated product teams relative to issues derived from research literature on effective teams: team implementation processes, mission and structure, training, team management, decision making and conflict resolution methods, and implementation challenges and pitfalls. The research, though only a small sample size, revealed that program managers are consistent with what current teaming literature considers to be "good teaming practices" in the areas of: basic team structure and functional area mix, openness and participation in meetings, and the administration of team meetings. The research also identified practices or problems that the research literature suggests limits team success such as the lack of: team consistency and stability, team specific training, team self-assessment and evaluation methods, and the absence of formal feedback mechanisms. Mixed findings were revealed in the areas of empowerment, team self-management, decision making and conflict resolution processes, and support for the teaming concept by senior management.

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# I. INTRODUCTION

The exploration of Program-level Integrated Product Teams (PIPTs) was chosen as my research topic for several reasons. Most important, the Integrated Product Team (IPT) concept is current, relevant, and pertinent to today's Army acquisition environment. Our shrinking national defense budget and corresponding decrease in the availability of funds for research, development, and procurement of new weapon systems have required Army Program Managers (PMs) to find more efficient ways to meet their cost, schedule, and performance objectives. The IPT concept is being implemented into the acquisition process to help the PM meet these goals.

In theory, the IPT concept exploits the collective knowledge of functional area experts and transforms a group of skilled individuals into an empowered, self-managed, and effective multi-functional team. This "two heads are better than one" approach to managing a program appealed to me as a logical approach to resolving issues and solving problems. After some initial reading about IPTs, I was anxious to further explore how PMs, having been given the directive to implement the IPT concept, were actually complying with its letter and spirit.

## A.    BACKGROUND

In May 1995, Secretary of Defense William Perry directed the Department of Defense (DoD) to apply the Integrated Product and Process Development (IPPD) concept of using Integrated Product Teams (IPTs) throughout the acquisition process. In response to that directive, DoD Directive 5000.1 and Regulation 5000.2-R were revised by the Office of the Under Secretary of Defense for Acquisition and Technology [USD (A&T)] to include specific

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direction and guidance on the structure and implementation of IPTs.

Also in response to the Secretary of Defense' guidance, the Office of the Deputy Under Secretary of Defense for Acquisition Reform published the Overarching Integrated Product Team - Working-level Integrated Product Team (OIPT-WIPT) Information Guide (March 1996). As figure 1 illustrates, OIPTs and WIPTs focus primarily on high-level strategic planning, guidance, and assessment while PIPTs are responsible for program implementation, execution, and management.

| Organization | Team | Focus | Participant Responsibilities |
|---|---|---|---|
| OSD and Components | Overarching Integrated Product Teams (OIPTs) | * Strategic Guidance<br>* Tailoring<br>* Program Assessment<br>* Resolve Issues Elevated by WIPTs | * Program Success<br>* Functional Area Leadership<br>* Independent Assessment<br>* Issue Resolution |
| | Working Integrated Product Teams (WIPTs) | * Planning for Program Success<br>* Opportunities for Acquisition Reform (e.g., innovation and streamlining)<br>* Identify/Resolve Program Issues<br>* Program Status | * Functional Knowledge & Experience<br>* Empowered Contribution<br>* Recommendations for Program Success<br>* Communicate Status & Unresolved Issues |
| Program Teams & System Contractors | Program Integrated Product Teams (PIPTs) | * Program Execution<br>* Identify & Implement Acquisition Reform | * Manage Complete Scope of Program, Resources, & Risks<br>* Integrate Government & Contractor Efforts for Program Success<br>* Report Program Status & Issues |

Figure 1. DoD IPT Types, Focus, and Responsibilities (OIPT-WIPT Information Guide, 1996, p. 3)

This thesis will focus on Program IPTs (PIPTs). PIPTs are formed by PMs at the

program level to make decisions or resolve issues by drawing on the technical expertise of the organization's functional area experts. PIPTs may consist of representatives from design engineering, manufacturing, systems engineering, test and evaluation, subcontractors, safety, hazardous materials, or any number of specialties within the scope of the program. Teams are formed and tailored as required by the PM.

## B.    OBJECTIVES

This thesis will provide the reader with a basic understanding of teaming and team building concepts and will explore how Army acquisition Program Managers are organizing, training, managing, and leading their PIPTs. This study will also examine some of the challenges and pitfalls that PMs face in developing and leading PIPTs and the characteristics that make those teams successful. The analysis section of this study will examine team building techniques and IPT implementation at the program level and will compare those findings with the research and theory on teams presented in chapter II of this paper.

## C.    RESEARCH QUESTIONS

### 1.    Primary Research Question

How are Program Integrated Product Teams (PIPTs) presently being organized, trained, and managed by the Army Acquisition Program Manager?

### 2.    Subsidiary Research Questions

*a.*    What is the Program Manager's leadership role with regard to his or her PIPT(s)?

*b.*    What are the characteristics of successful PIPTs and what metrics are used by the PM and team leaders to evaluate effectiveness and success?

        *c.*      What are the challenges and impediments in implementing PIPTs?

## D. SCOPE

This paper explores how Army PMs are presently organizing, developing, and managing IPTs at the program level. The leadership role of the Program Manager is also explored, and some of the challenges and pitfalls associated with implementing a program level IPT are presented. This paper also examines some of the critical success factors with respect to teaming and team building. Critical factors are defined as those areas which, if performed satisfactorily, will result in successful PIPTs.

This paper does not examine, in any detail, Overarching Integrated Product Teams (OIPTs) or Working Integrated Product Teams (WIPTs), which provide Office of the Secretary of Defense (OSD) and Program Executive Office (PEO) level oversight roles respectively. However, a short overview of these teams is included to provide the reader with a basic background and understanding of the IPT concept within DoD.

## E. METHODOLOGY

My research began with a literature review of current team building and management concepts and theories. Resources explored included: Internet searches for IPT articles, the Project Management Institute (PMI), Research, Development and Acquisition (RD&A) magazine and other professional journals, Defense Logistics Studies Information Exchange (DLSIE) searches, and telephonic and face-to-face interviews with PMs, former PMs, IPT members, and Naval Postgraduate School (NPS) staff with recent experience in program management.

The second phase of the research consisted of telephonic and face-to-face interviews

with PIPT managers, leaders, and members. Two Army program offices participated in the study from which two Program Managers, one Project Director, one Product Manager, five team leaders, and ten team members were interviewed. All telephonic and in-person interviews were recorded, with the interviewee's permission, and were designed to last approximately 30 minutes. The interviews were designed to address the primary and subsidiary thesis questions and gain a perspective from the managers, leaders, and members assigned to the PIPT. Once all interviews were completed, the researcher compared and contrasted the interviewees' responses with the teaming concepts presented in the literature. The findings were then analyzed and organized into logical groupings for presentation in the analysis chapter of the study.

## F.     LIMITATIONS

Because of the time required to conduct and analyze in-depth interviews, the sample size was limited to only a small number of participants. The responses are from just a few of the many ongoing Army acquisition programs. While a larger sample size and further research in this subject area would strengthen the generalizability of the findings of this study, this research will provide a baseline for continued exploration and study of the teaming concept within the DoD acquisition community.

## G.     ORGANIZATION OF THE THESIS

This thesis is divided into five chapters. Chapter I introduces the topic and presents some background on IPTs and DoD guidance and directives. The chapter also identifies the objectives of the research, lists the primary and subsidiary research questions, and states the scope, limitations, methodology, and organization of the thesis.

Chapter II consists of a literature review of teaming, team management, and the IPT philosophy and concept within the Department of Defense. This chapter defines the various types of IPTs used within the DoD and identifies some of the characteristics of effective teams, the challenges PMs face in implementing PIPTs, empowerment issues, risks, and team member responsibilities. Chapter III explains the research methodology, restates the objectives of the thesis, outlines the general research strategy, and presents a more detailed description of how the research was conducted and how the data were collected. Chapter IV analyzes the data collected through interviews with PMs and IPT members. Finally, Chapter V concludes the thesis with a summary of the findings and presents recommendations for areas of future research.

# II. LITERATURE REVIEW

This chapter defines Integrated Product Teams and presents some of the leadership attributes, team member skills, and other characteristics common to successful teams. Team responsibilities, empowerment, and the risks inherent to using multi-functional teams are also discussed. It must be noted that while the concepts and characteristics presented in this chapter are directly applicable to IPTs, they are not exclusive to IPTs. The concepts and characteristics discussed here are drawn from research and theory on teams in general and are considered to be pertinent to any team with a charter that requires it to resolve issues, make decisions, or solve problems.

## A. WHAT ARE IPTS AND WHY SHOULD WE USE THEM?

In 1995, Secretary of Defense William Perry directed the use of Integrated Product Teams (IPTs) in the defense acquisition process [DiTrapani, 1996]. Given that directive, Army Program Managers had to define exactly what IPTs are and gain an understanding of why they should use them.

During the literature review phase of this thesis, several definitions for work teams and IPTs surfaced. While all of the definitions contained similar language and concepts, the definition used by the Office of the Under Secretary of Defense for Acquisition and Technology [OUSD (A&T)] is presented here since it is representative of most definitions found in teaming literature and is simply stated and straightforward. The OUSD (A&T) defines an IPT as follows:

The Integrated Product Team (IPT) is composed of representatives from all

appropriate functional disciplines working together with a Team Leader to build successful and balanced programs, identify and resolve issues, and make sound and timely recommendations to facilitate decision making. IPTs are formed at the oversight and review level, and also at the PM level, and should include representatives from both Government and industry, after contract award (Defense Acquisition Deskbook, May 96).

IPTs operate under the following principles [OIPT-WIPT Information Guide, 1996, p. 4]:

1.  Open discussions with no secrets

2.  Qualified, empowered team members

3.  Consistent, success-oriented, proactive participation

4.  Continuous "up-the-line" communications

5.  Reasoned disagreement

6.  Issues raised and resolved early

The Army's shift toward the use of IPTs was greatly influenced by the creation of the Air Force Material Command (AFMC) in 1992. AFMC was created by merging the Air Force Systems Command (AFSC) with the Air Force Logistics Command (AFLC). Once formed, AFMC implemented a new acquisition management philosophy called Integrated Weapon System Management (IWSM). By combining the development and logistics elements under one command, IWSM allowed "cradle-to-grave" systems management and made the system program director the focal point for the customer. The IWSM concept increased the system program director's authority and flexibility over the program, integrated all of the critical acquisition processes, and eliminated the "seams" that once existed between development and support elements within the Air Force. [Przemieniecki, 1993] In 1995, the Army, acknowledging the success of the Air Force IWSM concept, adopted Integrated

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Product and Process Development (IPPD) as their acquisition management philosophy.

### 1. Integrated Product and Process Development (IPPD) and Program IPTs (PIPTs)

Integrated Product and Process Development (IPPD) is a management technique that simultaneously integrates all essential acquisition activities through the use of multi-disciplinary teams to optimize the design, manufacturing, and supportability processes. IPPD facilitates meeting cost and performance objectives from product concept through production, including field support.

At the program level, the IPPD concept is executed through Program Integrated Product Teams, or PIPTs. The purpose of PIPTs is to make timely decisions drawing on the technical knowledge of their many functional area experts. Typical PIPTs consist of tailored mixes of functional area experts from design engineering, manufacturing, systems engineering, test and evaluation, subcontractors, safety, hazardous materials, quality assurance, training, finance, reliability, maintainability, procurement, contract administration, suppliers, and customers. Dedicated teams are formed as required by the PM, and team members may be assigned to one or more PIPTs. [OIPT-WIPT Information Guide, 1996]

PIPTs are a shift away from the traditional, hierarchical decision-making process to a process where decisions are made across organizational structures. As such, PIPTs rely on high degrees of cooperation and empowerment. Teams must have full and open discussions and must respect the individual expertise that each member brings to the team. The team must strive for the best solution or decision, not simply one that all members can agree on, or are willing to concede to. PIPTs must also have the authority to speak for their superiors

in the decision making process, and so they must remain in close contact with their "principals".

## 2.    Dedicated IPTs

Dedicated teams operate together continuously. With dedicated teams, members may be attached to different organizations and may be evaluated by different supervisors. Ideally, team members will be co-located and will remain on one specific project throughout the life of the program [DiTrapani, 1996]. As such, this type of team usually has a high degree of coordination and communication since members are in contact with one another on a daily basis. One concern with this type of IPT is how to keep the "attached" functional experts current and keep their unique functional skills strong.

Because of the team's focus and continuous involvement in the product lifecycle, dedicated teams can almost be considered part of the program office structure. The significant difference is that the team members belong to other organizations that evaluate their performance, provide training, and pay their salaries. Dedicated teams are normally found at the program execution level, such as in program offices, where constant attention to the development of a product is required.

## 3.    Meetings-only IPTs

In the meetings-only IPT, team members may represent different organizations, different functional areas, report to different supervisors, and be geographically dispersed throughout different cities or states. With this type of team, members are called to meet whenever the need arises to make decisions or solve problems.

In the meetings-only environment, it is important that the program office keep the

team current on all program developments and that the team meet frequently enough to remain current on the issues. One advantage of this style of team is that its members are free to work full time on other projects and other teams which ensures cross-fertilization, consistency among programs, and maintenance of the "corporate memory." [DiTrapani, 1996]

For these reasons, meetings-only teams are normally used at higher levels of management where less frequent meetings are required and the issues are programmatic. Meetings-only IPTs in DoD are normally called Overarching IPTs (OIPTs), Working IPTs (WIPTs), or Integrating IPTs (IIPTs). These three IPTs will be discussed in more detail in the next section.

### 4. Higher Level IPTs

Three types of IPTs exist above the level at which PIPTs operate. Figure 2 illustrates the IPT structure within the DoD and identifies those higher level teams. At the highest levels, such as Office of the Secretary of Defense (OSD), IPTs assume an oversight and review role. IPTs in these overarching roles are intended to replace the old sequential acquisition process and hierarchical structure where committees waited for the Program Manager to provide them with a product which would then be substantially modified, or even rejected at the higher level. Through IPTs, leaders at all levels becomes members of the team, sharing the objectives and challenges of program success with the PM, not simply evaluating his or her performance. In the Department of Defense (DoD) acquisition process, the most common high-level IPTs used in oversight and review roles are overarching, working, and integrating IPTs. A description of these teams follows.

## IPT STRUCTURE

Overarching IPT

Integrating IPT

Working IPT

Working IPT

Working IPT

Working IPT

Oversight & Review

Program Environment

PIPT

PIPT

PIPT

Program Execution
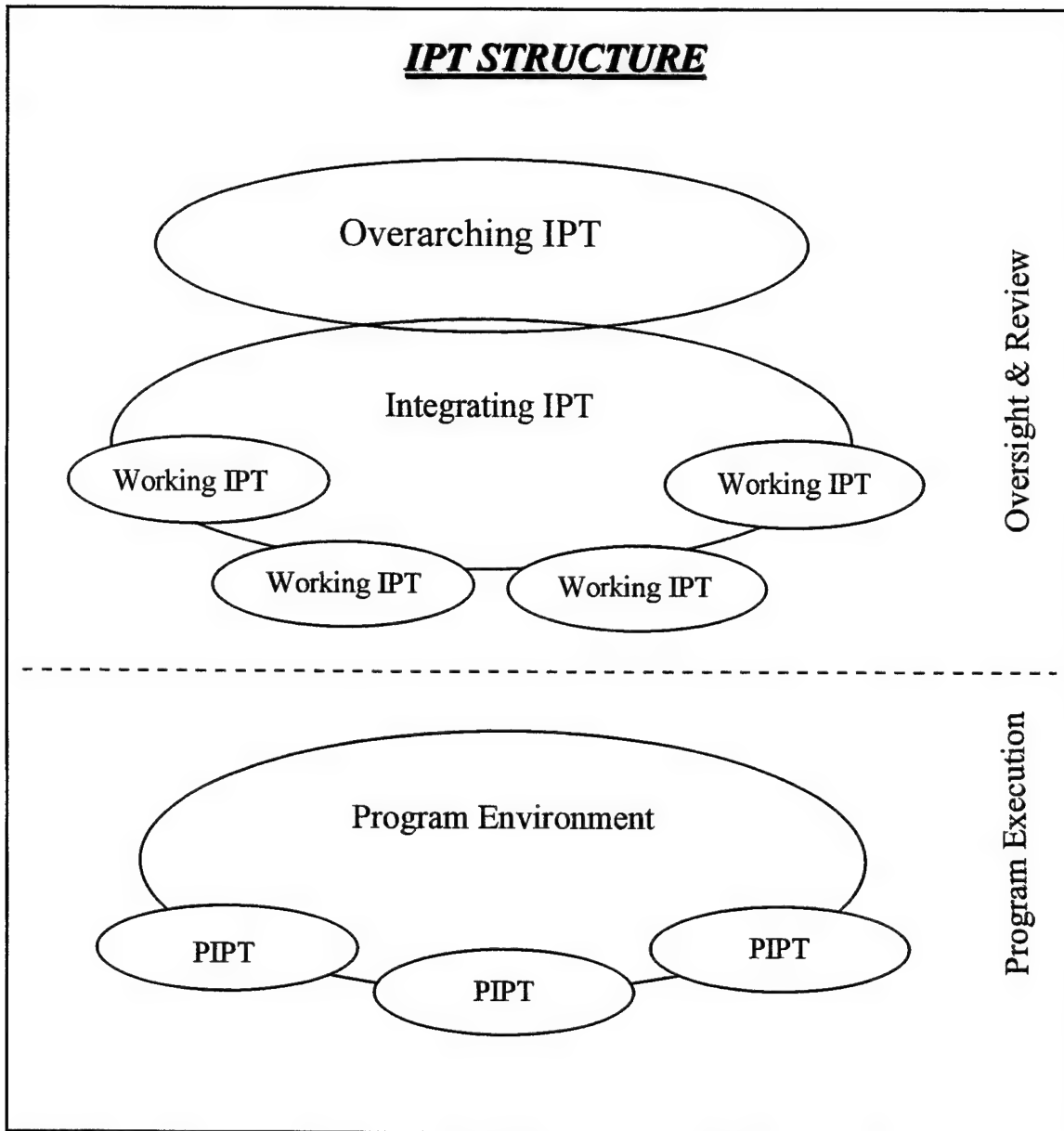
Figure 2.  IPT Structure in the DoD

### a.        *Overarching IPTs (OIPTs)*

OIPTs are formed at the Office of the Secretary of Defense (OSD) level, with the objective of providing assistance, oversight, and review for acquisition programs as they proceed through the acquisition life-cycle.  OIPTs are meetings-only teams that convene as needed over the life of the program.  OIPTs act on issues either at the request of an OIPT

member or when directed by the Milestone Decision Authority (MDA). In keeping with the intent of the IPT concept, OIPTs try to resolve issues at the lowest level possible, but must also know when to escalate issues that will not be resolved at their level. OIPTs normally meet two weeks prior to scheduled Defense Acquisition Board (DAB) reviews to assess information and recommendations being provided to that authority. If the OIPT is functioning effectively, there should be no unresolved issues or surprises at the DAB review.

### b. *Working IPTs (WIPTs)*

Working IPTs are also meetings-only teams that focus on specific functional areas of responsibility. They meet as required to plan program structure and documentation and to resolve issues. WIPTs operate under three tenets [DoD Regulation 5000.2-R, section 5.4.2]:

- The PM is in charge of the program
- IPTs are advisory bodies to the PM
- Direct communication between the program office and all levels in the acquisition oversight and review process is expected as a means of exchanging information and building trust.

WIPTs are responsible for developing strategies and program planning, establishing IPT plans of action and milestones, proposing requirements, reviewing and providing early input to documents, coordinating WIPT activities with OIPT members, resolving issues, and knowing when to elevate unresolved issues to a higher authority.

### c. *Integrating IPTs (IIPTs)*

Integrating IPTs are formed and led by the PM, or a designated team leader,

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to support the development of strategies for acquisition and contracts, cost estimates, evaluation of alternatives, logistics management, cost-performance trade-offs, and other areas as specified by the PM [DoD Regulation 5000.2-R, section 5.4.2]. IIPTs are responsible for coordinating the efforts of the individual WIPTs and ensuring that issues not addressed by any of the WIPTs are resolved at some level in the IPT structure.

## B.   WHY ARE IPTs IMPORTANT?

In today's acquisition environment the PM is "...faced with the monumental task of coordinating among (three) principal participants - Congress, industry, and the executive branch of Government - and managing an acquisition program in the midst of many significant, diverse, and often competing interests." Figure 3 illustrates the interrelationships among the key players. (Schmoll, p. 6, 1996)

A declining DoD budget and the rapid pace of technological change no longer allow PMs to manage programs by the traditional, hierarchical management structure and processes of the past. IPTs are critical to helping DoD move away from that pattern of management toward a process where an organization structures itself as teams which make efficient use of the expertise available across the entire spectrum of acquisition disciplines.

IPTs also support the DoD's acquisition streamlining initiative by reducing the decision cycle. Empowered IPTs can make decisions and resolve issues and problems quickly. Where a hierarchical management organization operates with a vertical, information-up and decision-down, centralized decision making process, the IPT concept is based on horizontal      information      flow      and      decentralized      decision      making.

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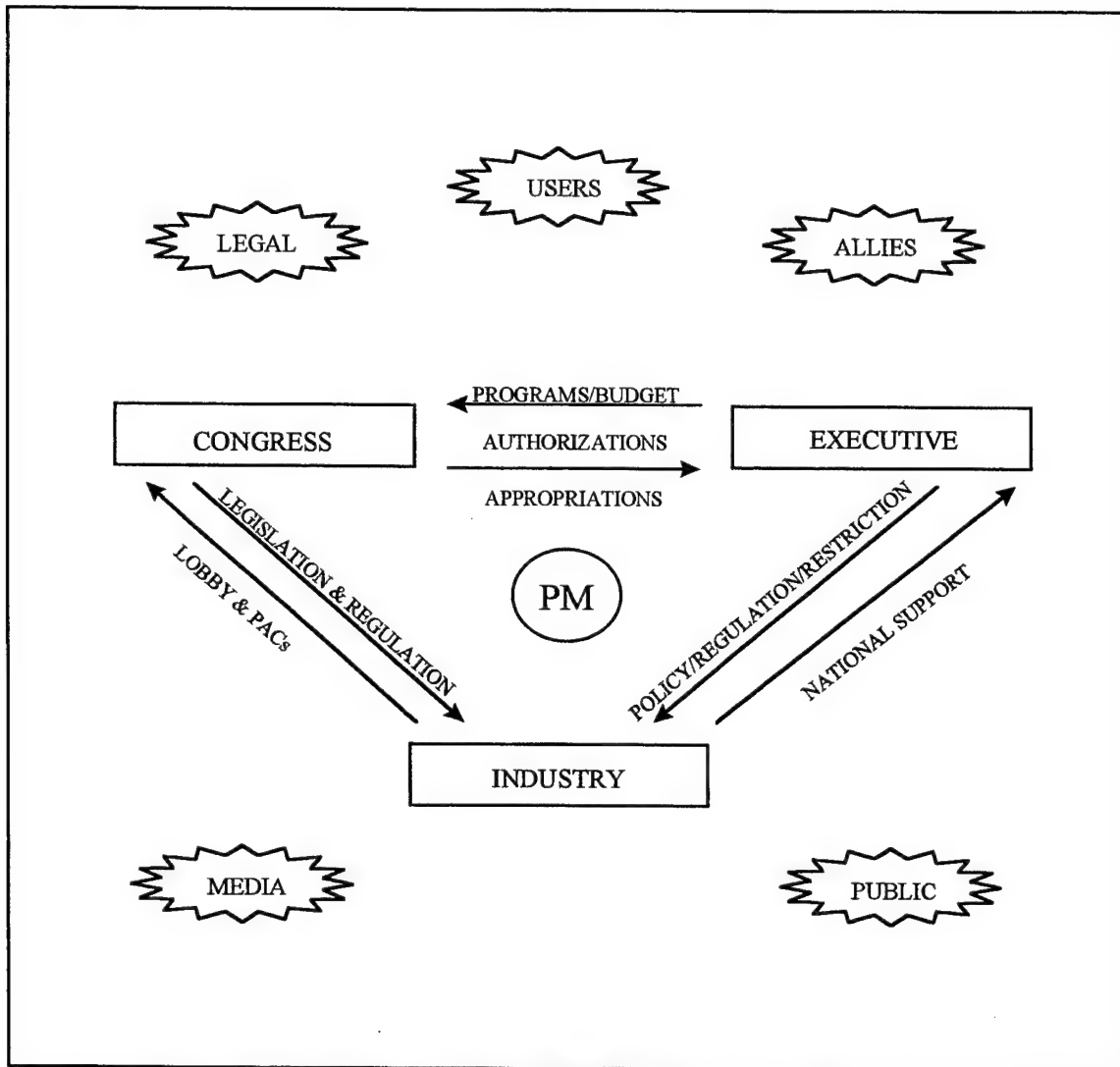
Figure 3. The Program Manager's Environment (Schmoll, p.6, 1996)

IPTs also support the DoD's acquisition streamlining initiative by reducing the decision cycle. Empowered IPTs can make decisions and resolve issues and problems quickly. Where a hierarchical management organization operates with a vertical, information-up and decision-down, centralized decision making process, the IPT concept is based on horizontal information flow and decentralized decision making.

Early and constant team involvement in the program eliminates surprises at the senior leadership level by identifying cost, schedule, and performance issues before they become problems that could jeopardize the success of the program. IPTs rely on the spirit of teamwork and empowerment to the maximum extent possible. Empowerment, or authorizing team members to make decisions for their organization, is regarded one of the tenets of IPT success. It is important to note that once a functional area expert is assigned to an IPT, that team member's focus must change from the narrow scope of his or her functional area to a more balanced view that supports the overall goals and objectives of the team.

The remainder of this chapter is designed to familiarize the reader with some of the team building concepts, theories, and characteristics found in contemporary management literature. The teaming concepts presented in this chapter are also intended to provide a basis for analysis of the data collected during the field study portion of this research. That analysis will be presented in Chapter IV of this study.

## C. TEAM LEADERS AND THEIR ROLES

Whether a team is an IPT serving an acquisition program or a work group functioning in another capacity, teams need effective leadership if they are to be successful. Parker (1996, p. 99) describes effective team leaders as:

> People who create an inspired vision for the organization, communicate a sense of enthusiasm for the effort, and are honest and authentic in their interactions with people.

Team leaders must be able to articulate their vision and present the team's mission so that the goals and objectives are clearly understood by all of its members. In their role as

managers, team leaders must establish work schedules and ensure tasks are carried out on time and to a high level of quality. According to Parker's (1996) research, effective leaders assume the roles of communicators, collaborators, challengers, and contributors. A more detailed discussion of these roles follows.

### 1. The Leader as a Contributor

In his or her role as a contributor, the leader emphasizes efficiency in problem solving. Planning has an emphasis on the short term, focusing on specific measurable objectives and utilizing detailed action plans. Other attributes of contributors are that they tend to be risk averse, preferring well-researched and reasoned proposals. Change is best received as an incremental process, and problem solving is done with an analytical approach using models and detailed plans and processes. Decision making is usually conservative, practical, logical, cost effective, and consistent with company policy.

### 2. The Leader as a Collaborator

In the role of a collaborator, the leader is one who is always ready to "roll up his or her sleeves" and go to work with the team. Collaborative leaders see their role as providing a focus on the future and establishing and setting goals and objectives for the team. Planning is strategic, emphasizing long range goals, and tends to involve the entire team. While this type of leader may lay out specific goals and objectives for the team, he or she also encourages a high degree of team member involvement and readily listens to their views. The collaborator likes a lot of discussion and input from the team. Risk taking is usually optimistic, focusing on the potential gain rather than the potential loss. The collaborative leader is not afraid to take calculated risks and has a "nothing ventured, nothing gained"

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philosophy.

### 3.     The Leader as a Communicator

Leaders with highly developed communication skills tend to take a participatory role in running the team.  In addition to their own participation, effective communicators try to involve all team members in the process of developing plans, setting goals, and resolving issues. Effective communicators tend to be warm, relaxed, and generally enjoyable to work with.  They understand that many people dislike meetings and will often make an extra effort to make meetings more enjoyable by setting a positive and relaxed climate.  Good communicators are also good listeners and are particularly effective in one-on-one situations outside of the meeting place.

Leaders with high level communications skills will take risks aimed at improving how the team functions.  He or she will want to ensure all team members are fully aware of the consequences of any risks taken and that all members are comfortable, or at least supportive, of the actions to be undertaken.

Communicators will approach problem solving in much the same manner as they do for planning.  They will use high involvement problem-solving techniques to attack the issues. He or she will also try to resolve issues at the lowest level, believing that those persons closest to the problem know best how to solve it.  The decision making process on teams led by communicators tends to be highly democratic with the opinions of all team members being heard before a decision is made.  On major issues, the communicative leader will often accept the group consensus as his or her final decision.

### 4.    The Leader as a Challenger

While a team member who has the attributes of a challenger tends to question authority, a team leader with those same attributes tries to establish an atmosphere of openness and candor within the team. This type of leader wants all members to question the team's mission, methods, and actions. Similarly, he or she will constantly question reports, presentations, and recommendations presented by the team. Planning under a challenger tends to push the team in new directions, questioning a business as usual approach. The challenger leader likes to employ brainstorming techniques and encourages other approaches that allow free thinking. This type of leader drives the team to explore solutions which may be beyond what is considered to be safe and predictable.

Communications under a challenger leader are normally open, direct, and at times confrontational. Questions are raised to stimulate debate and give-and-take discussions. The whole atmosphere surrounding a challenge focused team is direct and to the point with little "beating around the bush."

Risk taking focuses on the potential gain of each risk considered. This style of team is action oriented and is not afraid to venture into new frontiers. The team's focus is on the positive results of success rather than the potential consequences of failure. Under a challenger leader, innovation is encouraged and team members are given a high degree of freedom to fail. Good tries are not punished.

Problem solving is also unstructured. The leader will focus the team on identifying the root of the problem, not just its symptoms. Hard questions will be raised about the data and methods used to solve and analyze a problem. The challenger leader will demand that the

team develop a number of alternative solutions which, in each case, will undergo the same level of careful scrutiny by the leader.

Decisions are made based on what is right, ethical, and legal. Challengers rely heavily on "gut" instinct and "judgement calls." He or she will interrogate each team member thoroughly to identify any underlying resistance or unaddressed concerns which may not have been raised to the team before a final decision is made.

## D. TEAM DESIGN AND MANAGEMENT

In deciding how a team should be designed and managed, some of the key questions which must be addressed are: What management functions should the team members perform? What management functions should be left to those persons assigned to organizational management positions? How much self-management should the team be allowed to employ? What are the leadership roles for the team? This section will explore these questions and will compare traditional management roles to roles in team-based settings. [Mohrman, Cohen, and Mohrman, 1995, p. 133]

### 1. Traditional Managerial Roles

In the traditional role, managers are responsible for task management, work breakdown and scheduling, determining work methods and processes, resource allocation, monitoring progress, and ensuring all work performed by various functional areas is integrated. Managers are also responsible for coordinating across work groups and organizational boundaries, responding to customer needs, resolving conflicts, ensuring all work meets the required technical standards, and the training and career development of their employees. Managers also have the role of defining performance objectives, then counseling

and reviewing employee performance and potential for advancement.

Under a traditional management system, a functional area manager would assume all of the responsibilities listed above, and many which have not been addressed, for one particular discipline such as engineering or manufacturing. While these functional area managers would normally be responsible for only one part of the system, a Program Manager would have overall responsibility for integrating the efforts of each discipline toward development of the entire system or product. Program Managers typically would have "come up through the ranks", having been a functional area manager at one time, and would have the experience and broad knowledge base necessary to manage and integrate the overall process. The Program Manager is also responsible for resolving conflicts and issues escalated by the functional managers, allocating resources to each area as required, and dealing with cost and schedule overruns. [Mohrman, Cohen, and Mohrman, 1995, pp. 134-136]

## 2. Management and Self-Management in a Team-Based Organization

In team-based organizations, task management, boundary management, technical leadership, and performance management responsibilities are all designed into work teams. The team members perform many or most of the roles which were the responsibility of their individual functional managers under a traditional management system. The teams themselves assign tasks, establish work schedules, coordinate actions among team members, resolve conflicts, and cross team boundaries as necessary to coordinate with other work groups. Team members may also have the authority to contact suppliers, customers, and other external entities with full empowerment to act on behalf of the organization. Self-managed work teams may also share in the planning and development process, establishing goals and

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objectives, evaluating performance, and recommending process improvements.

Work teams depend on senior management to link them to organizational strategies and to keep them informed about organizational decisions which are relevant to their objectives. Self-managed teams look to senior management to provide guidance on priorities, to provide and allocate resources, and to resolve issues that can not be settled internally by the team. [Mohrman, Cohen, and Mohrman, 1995, pp. 136-144]

However, even self-managed work teams are not totally self sufficient. Those persons assigned to management positions within the organization have a significant role in the effectiveness of the teams. Managers are responsible to help strengthen the linkages between the work of the team and the larger system. They must also align the team's systematic measures and processes, support the team in adopting and maintaining high standards, ensure all team members understand the performance expectations, ensure team members get required training, and ensure that they are aware of the organizational policies and charters. Managers resolve conflict and clarify objectives when the team leader cannot. The manager must ensure each team member understands the team's goals, interdependence, processes, and level of empowerment. Finally, managers must provide the mechanisms for linkages between critical interfaces as part of the organization design. [Hocevar, Thomas, and Thomas, 1996]

## E.    TEAM SKILLS

In order for teams to be successful, members must have or develop the right mix of skills. Some of the critical skills required for successful teaming include [Mohrman, Cohen, and Mohrman, 1995, p. 248]:

- Technical or Functional Competence

- Cross-Training

- Interpersonal and Conflict Resolution Skills

- Decision-making Skills

- Learning Skills

- Leadership Skills

### 1.      Technical or Functional Competence

Team members must have the technical skills and knowledge base that will allow them to represent their particular functional area and contribute to the team's goals and objectives. They should possess both a formal education and practical experience in their area of expertise. Each member must remain current with respect to technical changes in his or her field to be a true functional area expert.

Team members may not have all the skills they need to support the team's objectives when they are first assigned to the team. Therefore, education and training must be an ongoing process where members continuously learn from their technical mentors, formal training, informal training, experience, and from each other.

The team's functional area mix is just as critical as the skill levels of its members. The team's collective knowledge must be sufficient to reach the desired objectives. Internal and supplemental development is not enough to compensate for an improper mix of skilled team members. [Mohrman, Cohen, and Mohrman, 1995, pp. 248-249]

## 2.    Cross -Training

Although it is highly desirable, fully cross-trained integrated teams may be impractical due to the technical complexities of each functional area represented on the team.  However, all team members should have a level of understanding of the other team members' jobs that will enable them to discuss issues and functional area trade-offs and to understand divergent points of view.  The more team members know about the other functional areas represented on the team, the better the chances for effective communications among the team. [Mohrman, Cohen, and Mohrman, 1995, pp. 249-250]

## 3.    Interpersonal and Conflict Resolution Skills

Team members must be able to communicate clearly, listen to other views and opinions, feel free to offer ideas and suggestions, and be willing to respectfully and objectively disagree with other members of the team.  Conflict resolution skills are vital to any team. Members bring different frames of reference and bodies of knowledge to each meeting.  Each member will have his or her own priorities, ethics, perceptions, and biases.  In order for teams to effectively resolve conflict, they must be able to recognize and respect these differences and freely voice concerns, feelings, and frustrations.  Above all, the team must have clearly established and understood goals.  Without clear goals, conflict resolution is not possible. [Mohrman, Cohen, and Mohrman, 1995, pp. 250-251]

## 4.    Decision-Making Skills

In order to be effective decision makers, teams need systematic decision making processes.  Systematic decision processes are methods of collecting data, evaluating alternatives, and determining outcomes.  The decision making process can be taught on the

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job and within the team, but the team must be sure to take the time to conduct proper training and to orient new members to the decision making process.

The team leader must ensure that the decision making process is enforced and is not cast aside when the team is confronted with a short suspense action or other type of problem that may require quick resolution. While it may be faster and seem easier to make a hasty decision and disregard a systematic approach, the end result may be a poor decision which will require rework and additional time. It is important that the decision making process adopted by the team be acceptable to all team members. If not, resistance will impede the process and will be counter productive. [Mohrman, Cohen, and Mohrman, 1995, pp. 251-252]

### 5. Learning Skills

Team members must be willing to develop skills they do not already have. They must be willing to develop and expand interpersonal skills and conflict resolution skills, and they must stay current in their functional areas of expertise. In addition, members may be required to attend formal training in their disciplines outside of the team environment. Team members must also be open to learning something about the other disciplines on their team. This relates closely to the team cross-training concept discussed earlier. The more each member knows about the disciplines involved with his or her team, the better the team will communicate, interact, and solve problems. [Mohrman, Cohen, and Mohrman, 1995, p. 252]

### 6. Leadership Skills

Team members must be ready to assume a number of different leadership roles. They may be tasked to assume the role of team leader, technical mentor, trainer, system integrator,

or liaison with another work group or entity external to the team. To carry out these roles, individuals must develop skills that will allow them to influence others, manage meetings, communicate effectively, and resolve issues. [Mohrman, Cohen, and Mohrman, 1995, pp. 252-253]

## F.    CHARACTERISTICS OF EFFECTIVE AND INEFFECTIVE TEAMS

While it is difficult to identify exactly what it is that makes a team effective or ineffective, some research has been conducted in the area of behavioral science and self-managed teams that offers evidence of characteristics of effective teams. In 1960, Douglas McGregor published "*The Human Side of Enterprise*", a book focusing on how to motivate people. In that publication, McGregor presented his famous Theory X and Theory Y concepts and identified some of the key characteristics common to effective teams. More recently, in their paper "*Self-Managed Work Teams: A Field Study From the Public Sector*", Hocevar, Thomas, and Thomas (1994) have identified some key characteristics of successful self-managed teams. The findings from both works are presented below.

### 1.    Group Interaction

The atmosphere in which a successful team operates can be sensed after only a few minutes of observation. Meetings tend to be comfortable and relaxed, and people seem to be genuinely involved and interested in the issues at hand. There are no signs of boredom, and there is a lot of discussion in which virtually everyone participates. The discussion, for the most part, remains pertinent to the task at hand, and people are free in expressing their feelings and ideas on any issues that may arise. When the discussion does get off the subject, someone will bring it back in short order. There are few "hidden agendas," and everybody

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on the team appears to know how the other members feel about any matter under discussion.

Team members listen to each other. Every idea is given a complete hearing, and people are not afraid to present creative thoughts even if those thoughts seem extreme. Criticism is frequent, frank, constructive, and oriented toward removing obstacles that prevent the group from getting the job done.

The leader of the group does not dominate it nor does the group defer unduly to him or her. In fact, the leadership may shift at times and allow the team's functional area experts to take charge as appropriate to the issues at hand. There is little evidence of a struggle for power as the group operates. The issue is not who controls the team, but how to get the job done.

In contrast to effective teams, ineffective teams project an atmosphere of indifference and boredom. The group is clearly not challenged by its task nor genuinely involved in it. A few people tend to dominate the discussion, and when they stray from the issues, little is done to get the group back on track. People do not really listen to each other. Ideas are ignored and overridden, and the discussion jumps around with little coherence and no sense of movement toward the objectives. The leadership remains clearly with the appointed team leader. He may be weak or strong, but he sits always "at the head of the table."

In less effective teams, conversations with members after a meeting may reveal they have held back ideas or feelings for fear they would be harshly criticized. Criticism is often embarrassing and tension-producing. It involves personal hostility and, as a result, no one is willing to stick his or her neck out to present new ideas.

## 2.    Shared Purpose

The goals of a successful team are clearly understood and accepted by all members. There is free and open discussion of each objective until a plan is formulated by a form of consensus in which everybody is in general agreement and willing to support the decision. Individuals who oppose an action do not hide their opposition and thus let an apparent consensus mask real disagreement. Formal voting is at a minimum; the group does not accept a simple majority as a proper basis for action. When action is taken, clear assignments are made and accepted.

On ineffective teams, action decisions tend to be unclear and no one really knows who is going to do what. Even when assignments of responsibility are made, there is often considerable doubt as to whether they will be carried out. Goals are also unclear and there is no evidence that the group either understands or accepts a common objective. Members may develop their own objectives which are often in conflict with each other and with the group's task.

## 3.    Conflict Management

Successful teams find ways to constructively solve and manage conflict. There is disagreement among the group, but it is expressed as a genuine difference of opinion and members expect, and receive, a thorough hearing by the group before an action is decided. The dissenter is not dominated by the group nor is there a "tyranny of the minority" in which individuals who disagree try to dominate the group or express hostility toward other team members.

Sometimes there are basic disagreements which can not be resolved immediately by

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the team. When this occurs, an action may be deferred to permit further study or reconsidered at a later date. In any case, the team does not allow disagreement to impede its progress.

Unsuccessful teams fail to manage conflict effectively. Disagreement may be completely suppressed by a leader who fears conflict or, on the other hand, conflict may result in open warfare with domination by one subgroup over another. There may be a "tyranny of the minority" in which an individual or a small subgroup is so aggressive that the majority accedes to their wishes in order to preserve the peace or to get on with the task at hand. In general, only the more aggressive members get their ideas considered because the less aggressive people tend to keep quiet altogether or to give up after short, ineffectual attempts to be heard.

Actions are often taken prematurely before the real issues are either examined or resolved. There will be much grousing after the meeting by people who disliked the decision but failed to voice their opinions during the meeting. A simple majority is considered sufficient for action, and the minority is expected to go along. Most of the time, however, the minority remains resentful and uncommitted to the decision.

Struggling teams are plagued with team members' personal conflict, and that conflict draws the attention of the team members and management who must eventually be called in to settle the ongoing disputes.

### 4.    Process Improvement

Successful teams are proactive in their approach to teaming. They constantly look for ways to improve their techniques and processes. The group is self-conscious about its own

operations and will frequently stop to examine how well it is doing or what may be interfering with its operation. When a problem surfaces, it receives full and open discussion by the entire group until a solution is found.

Successful teams also understand how their efforts fit in the "bigger picture." They are aware of how their work contributes to the goals and objectives of the organization. They develop tools and techniques to understand their work processes and their measurements are tools for documenting, monitoring, and improving their work.

In contrast, ineffective teams tend to avoid any discussion of their own "maintenance." There is often much discussion *after* the meeting of what was wrong and why, but these matters are seldom brought up and considered within the meeting itself where they might be resolved. Unsuccessful teams often fail to develop systematic ways of monitoring their work. "No news is good news" is often the modus operandi for their feedback system.

### 5.    Ownership and Commitment

Successful teams take ownership of their work processes and performance goals. They are actively involved in establishing team goals and express mutual accountability for the work that needs to be done and the standards that must be met. There is a strong commitment and dedication to the team concept and members refer to themselves as "the team." They have accepted teaming as part of the organizational culture and do not consider teaming to be just a passing fad. The team also believes they have the full support of top management.

Ineffective teams do not clearly understand or accept accountability for performance objectives. They do not feel an obligation to give feedback to fellow team members about

mutual expectations of performance. They rarely talk about themselves as a team and believe they are receiving mixed messages from management with regard to management's support and confidence in the team's decision making authority and abilities. Ineffective teams often do not see how their work or processes impact on other elements in the organization. They are internally focused and have little sense or understanding of the customer's needs.

Struggling teams display the symptoms of mistrust, cynicism, hopelessness, being overwhelmed, fragmented, and frustrated. They also lack commitment and often become stuck or get bogged down on the issues.

## G.    MEASURING SUCCESS

While it is difficult to assess the effectiveness of a PIPT, the primary metric for success seems to be how well the program is meeting its cost, schedule, and performance objectives. However, some companies and Government project offices are using *team self-assessment techniques* in addition to cost, schedule, and performance metrics to assess how well their groups are working *as teams*, and to evaluate how well the team's *processes* are working.

The self-assessment programs of two major defense contractors and three Government project offices were evaluated as part of a study on teaming conducted by the Center for Naval Analysis [DiTrapani, 1996]. The study found that self-assessment programs focused on both team leaders and team members and was designed to evaluate organizing and planning processes, process management skills, people skills, individual job skills, and leadership. However, DiTrapani notes that, although self-assessment techniques were being used to measure *process*, the primary metric used to evaluate overall *effectiveness* was still

cost, schedule, and performance measures.

Teams are also evaluated based on individual performance and cooperation with other IPTs associated with the program. An individual's performance may be evaluated by his or her team leader, functional area supervisor, or both. In some organizations, PIPT members receive written evaluation by their team leader with concurrence on job performance being provided by the functional area supervisor. Conversely, some PIPT members are evaluated by their functional area supervisor who then seeks the team leader's concurrence. Other methods used to measure individual performance included ranking, by either the team leader or other team members, and rating individuals by secret ballot. Individual performance is frequently incentivized by a cash bonus system or other forms of incentives. [DiTrapani, 1996, pp. 36-40]

## H.    EMPOWERMENT

To empower is to give authority or power to an individual. With respect to PIPTs, team members who are empowered must (1) have the necessary functional skills that qualify them to speak for their functional organization in most situations, and (2) have prompt access to their organizations/supervisors for those situations requiring policy change or deviations. [DiTrapani, 1996, p. 31]

Another definition of empowerment is, "the capability to make a difference in the attainment of individual, team, and organizational goals" [Mohrman, Cohen, and Mohrman, 1995, p. 279]. Mohrman identifies the two major aspects of empowerment as direction and capability. Direction focuses attention and energy. The team knows where it is supposed to be going and it knows how to work with others to get there. Clear organizational direction

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allows individuals to relate their personal objectives to organizational objectives, allowing them to make a direct contribution to the success of the organization and to know they are making a difference or having an impact. Capability is the level of knowledge and skill required to make a contribution to the team and help in the attainment of organizational goals. In order to maximize the team's capability, management must ensure the team has the necessary material resources, training, and support to perform its mission.

Dr. Kenneth Thomas (1996), identifies the four elements of empowerment as:

- *Choice*: The opportunity you feel to select task activities that make sense to you and to perform them in ways that seem appropriate. The feeling of being free to choose -- of being able to use your own judgement and act out of your own understanding of the task.

- *Competence*: The accomplishment you feel in skillfully performing the activities you have chosen. The feeling of competence involves the sense that you are doing good, quality work on a task.

- *Meaningfulness*: The opportunity you feel to pursue a worthy task purpose. The feeling of meaningfulness is the feeling that you are on a path that is worth your time and energy -- that you are on a valuable mission, that your purpose matters in the larger scheme of things.

- *Progress*: The accomplishment you feel in achieving the task purpose. The feeling of progress involves the sense that the task is moving forward, that your activities are really accomplishing something.

This model was applied to the research on self-managed teams conducted by Hocevar, Thomas, and Thomas (1994). They found that although a team may be empowered, boundaries are normally established which limit the authority of the team. Teams are normally given the authority to act on matters for which they have experience and authority, but must seek supervisory approval for matters which are beyond the normal scope of the team. As

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such, it is important that the organization clearly define team authority and responsibilities and that the team members fully understand their boundaries, authority, and responsibilities to the program.

## I.     CHALLENGES OF IPT IMPLEMENTATION

The use of PIPTs requires an organization to move away from a traditional hierarchical structure. Moving to a team based organization requires not only a structural change, but also a change in the way people think and behave within the organization. This cultural change will affect people in different ways. While some will embrace the concept, others may find new processes and systems unsettling and disruptive.

The following characteristics of team-based organizations have implications for organizational structure and behavior. [Mohrman, 1995, p. 350]

### 1.     *The Team Based Organization Changes the Notion of Organizational Boundaries.*

As teams develop, traditional boundaries become unclear. Teams begin to form alliances and communications with other teams, both internal and external to the organization. A closer working relationship with customer and supplier organizations is likely to ensue.

### 2. *The Team Based Organization Is a Learning Organization.*

A PIPT consists of people from different functional areas with different perspectives. When they are put together as a team, multidirectional learning must take place in order for the team to be effective. The strength of the team lies in its ability to combine the individual, specialized knowledge base of each team member to produce new shared knowledge. Learning occurs through collaboration and dialogue within the team, as well as vertically and

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horizontally through organizational boundaries.

*3. Team Based Organizations Demand High Levels of Formal and Informal Cooperation Simultaneously.*

The complexities and many levels on which teams communicate and interact require that formal structures and processes be developed. Without formal structure, communication and coordination problems between teams will surely occur. Clear communication channels, lines of authority, team missions, goals, and charters all help the integration process. However, successful team-based organizations also depend on informal cooperation and voluntary processes, especially when crossing organizational boundaries. The relationship between formal and informal processes are reciprocal; formal processes shape informal connections, and informal connections shape what needs to be formalized.

*4. Extensive Systems Development Efforts Are Required to Support the Team-Based Organization.*

Since teams are so heavily communication and information based, hardware and software systems must also be integrated to allow seamless connectivity between teams. Poor interfaces and incompatible communication systems will impede team efficiency and productivity. "Technology Islands" can not exist in the team environment. Developing new and better systems to support team-based organizations is a constant and ongoing process. New technologies should be explored and new capabilities exploited to enhance team efficiency.

*5. The Demands Generated by Team Based Organizations Challenge the Capabilities of Organizational Participants.*

As a team member, each individual must be more than just a technical expert in his or her own functional area. Members must have or develop a broad based knowledge that allows them to understand and interact with a variety of other functional area experts. Team members must be able to "see the larger picture" of how all functions fit together to produce a better product, resolve a difficult issue, or choose an optimum decision. Team members must be able to understand complex trade-offs and have the ability to put their own biases and special interests aside to resolve issues for the good of the team.

### 6. Managers Are Designers in the Team-Based Organization.

A key challenge for managers is to design the right number of teams and to assign the optimum mix of functional experts for each team. Managers must also decide what type of team is required, how often the teams will meet, how they will be led, and the methods to be used to acquire feedback and to resolve conflicts and present issues. Managers must ensure the communication and information flow across organizational levels and boundaries is sufficient to support the team and provide an environment for success. It is important for the organization to recognize that, for many managers, this may be a new role and one which will require that the manager be given the necessary support and training.

## J. TEAM RESPONSIBILITIES

Self-managed teams perform several functions related to managing themselves and integrating their work efforts. Some of those key functions are [Mohrman, Cohen, and Mohrman, 1995, p. 247]:

- Planning and Executing Their Work

- Integrating With Other Teams

- Participating in Their Own Performance Management

- Improving Team Performance

- Escalating Issues as Necessary

- Influencing Business-Unit Decisions

Teams leaders and managers must determine how they will allocate work. They must also assign roles and responsibilities, monitor individual and team progress, and use formal and informal processes to integrate the work effort both internally and externally to the team. Team leaders must work with management to establish goals and performance metrics, develop team capabilities, and identify training shortfalls and requirements. Managers and team leaders must develop incentives and rewards and stimulate performance, both on an individual and team basis. In addition, team members and leaders must always be looking for ways to improve team performance and use cross training and knowledge leveling to broaden the team's collective and individual knowledge base.

Team members must also know when it is appropriate to escalate issues which are either beyond their level of expertise or outside their scope of authority and responsibility. They must recognize when a conflict among the team is stalling progress and impeding the process so they can get senior management involvement or guidance.

Finally, as the team matures and learns, team members should develop a customer perspective that will help the organization to make smarter decisions that will result in a product that better meets the customers needs. As team members develop their skills and

perspectives, conditions may be created that will allow management to further empower the team and expand the team's responsibilities and scope.

## K.     POTENTIAL PITFALLS AND RISKS

Teaming, while having many positive aspects, is not without problems. This section examines some of the potential pitfalls or risks inherent to PIPTs and team based organizations. [DiTrapani, 1996, pp. 45-48]

Teams run the risk that, over time, they may develop a committee mentality. A committee mentality is characterized by individual team members placing the interests of their functional areas above what is in the best interest of the PIPT. When teams start behaving as committees, a pattern of decision making may develop which yields the "lowest common denominator" solution instead of an optimum solution to a problem. Where teams are oriented toward achieving goals and objectives for the good of the program, committees tend to focus on what is best for their specific department or functional area. Committees also tend to value a non-confrontational atmosphere. In that environment, a PIPT may settle for solutions that all members can "live with" instead of striving for the more difficult, yet often more beneficial, solution.

Another pitfall which team leaders must be aware of is the potential for their teams to stray from contract requirements. It is possible for highly motivated PIPTs with "can-do" attitudes to stray from contract requirements to the point where the contractor takes on more than it can handle or more than is allowed by the terms of the contract. In this situation, cost overruns, schedule delays, and claims against the Government are likely to occur.

PMs must also guard against creating a PIPT to resolve every issue, or relying too

heavily on the teaming process to make decisions. Some matters are still better handled by an individual - such as the PM, team leader, head engineer, or other functional area expert - rather than an integrated team. The teaming process may not be appropriate for resolving matters which are time sensitive, routine, or of a recurring nature since group decisions require more time and coordination than individual decisions.

Too many PIPT meetings, or poorly run meetings, will have a negative impact on an organization. Where efficient, well managed PIPT meetings are likely to improve the effectiveness of an organization, excessive, or poorly run PIPTs are counter productive and are a distraction to the normal routine and work flow within a program office. Too many meetings keep people away from their jobs and may lead to resistance by the functional organizations who suffer when their personnel spend too much time attending PIPT meetings and too little time with the parent organization.

There is a significant investment by the PM in the formation of a PIPT. Developing a PIPT requires the creation of charters, rules, roles, authorities, handbooks, and goals. The formation of these, while critical to the team's success, is in itself a time consuming process that adds to start-up costs and lengthens the time a team exists. Also, merely by establishing such controls, the team risks becoming a stovepipe entity by creating boundaries between it and the rest of the organization. PMs must guard against guidelines which, if too tight, could hinder interaction with key elements both inside and external to the organization.

Team members who serve on PIPTs for long periods of time must guard against degradation of their own individual and core skills. While people assigned to multi-functional teams often develop new skills through interaction with others who possess expertise in areas

different from their own, the time an individual spends learning the jobs of other team members is time away from their own functional area discipline. Also, time dedicated to PIPT meetings is time away from the parent organization and colleagues, where the individual is exposed to new developments in their field or functional area. Program Managers and organizations who assign people to PIPTs must consider provisions for the sustainment of core skills in their management plan.

Finally, PMs who fail to invest in adequate PIPT training risk poor team performance. Training plans must provide PIPT members with at least the minimum skills necessary to be effective team players and must set aside the appropriate amount of time needed to conduct quality training. While too little training leaves team members unprepared to deal with the dynamics of the teaming process, too much training can detract from the mission of the team, focusing on process over product development and defeating the purpose for which the team was formed. Organizations must give careful consideration to the amount and quality of training provided to their teams.

## L.   SUMMARY

In summary, well managed and properly structured PIPTs will provide the PM better insight with less oversight. However, successful PIPTs require a significant investment by the PM in time and resources. Not only must PIPT members learn new interpersonal skills, they must find innovative ways to retain core skills and competencies which could deteriorate as they spend less time with their parent organizations and more time with multi-functional teams. In addition, the organization must be committed to change from a traditionally managed organization to a team based entity characterized by empowerment, free and open

communications, shared purpose, ownership, commitment, continuous self-assessment, and process improvement.

Successful teams must focus on prevention over cures and allow acquisition managers to identify problems early in the acquisition process and throughout the acquisitions cycle before those problems grow larger and become more costly and resource intensive. Successful teaming will provide the customer with needed products they need faster, cheaper, and with a higher degree of reliability and efficiency. In short, the proper implementation of integrated teams should assist Program Managers in meeting cost, schedule, and performance objectives faster and more efficiently.

## III. RESEARCH METHODOLOGY

### A.     OBJECTIVE OF THE RESEARCH

This thesis explores how Army Acquisition Program Managers, having been directed by the Secretary of Defense to implement the IPT process within their programs, are doing so. The research examines the degree to which PMs are following the letter and intent of the IPT concept. A primary goal of this research is to present a snap-shot look at how Army program offices are structuring, training, and managing PIPTs. The research will also present findings on how the PIPT concept is being received by members of the organization, how teams make decisions and resolve conflict, and will present some of the implementation challenges encountered in instituting the PIPT process.

### B.     GENERAL RESEARCH STRATEGY

A comprehensive review of open literature on teaming and team building concepts was conducted followed by telephonic and face-to-face interviews with PIPT managers, leaders, and members. In this study, PIPT managers include DA selected Program Managers (which includes Project Directors and Product Managers) and senior civilian managers who are responsible for PIPTs within their organization. Team leaders are those individuals appointed by senior management in their organization to lead a PIPT. The data gathering began with a public domain information search which included general library references and text books, electronic data base searches using key word and subject searches through library provided terminals and the Internet, and other references available in the Naval Postgraduate School Acquisition Library. Acquisition professionals and management faculty at The Naval

Postgraduate School also provided valuable insight, guidance, and reference materials to support the study.

The primary method used to collect current, non-historical data, was face-to-face and telephonic interviews. Two separate lists of interview questions were created by the researcher. One list of questions was prepared for senior management interviews and the other for PIPT leader and member interviews. The questions were designed to solicit responses which would answer the primary and subsidiary research questions presented in Chapter I. All interviews were recorded on audio tape, then transcribed and compiled into cumulative response lists which allowed the data to be categorized and analyzed.

## C.    CONDUCTING THE RESEARCH

### 1.    Participating Organizations

Two Program Offices were selected for on-site interviews. Program office "A" uses two PIPTs and is managed by a Department of the Army (DA) appointed Project Director responsible for the coordination, integration, and fielding of a wide area communication network. One of the PIPTs in this program office is an interagency team comprised of representatives from several Government and DoD agencies. The second team is a "contractor pure" PIPT (all members are full-time civilian workers, employed by the prime contractor). Both teams are chartered to resolve technical matters relating to the fielding of the wide area network, including computer hardware and software integration issues.

The second program office that participated in the research (program office "B") uses three PIPTs, all managed by DA selected Product Managers. Of those three teams, only one team was used in this study. However, the team that was examined is representative of the

other two PIPTs in program office "B" in both its structure and management style. The main difference between teams is each team's primary objective or final product. While all three teams have different objectives, they are all focused on product development.

Each team consisted of six to eight team members and a team leader who was appointed by the Product Manager. Figure 4 illustrates the structure of the two program offices that participated in the research.
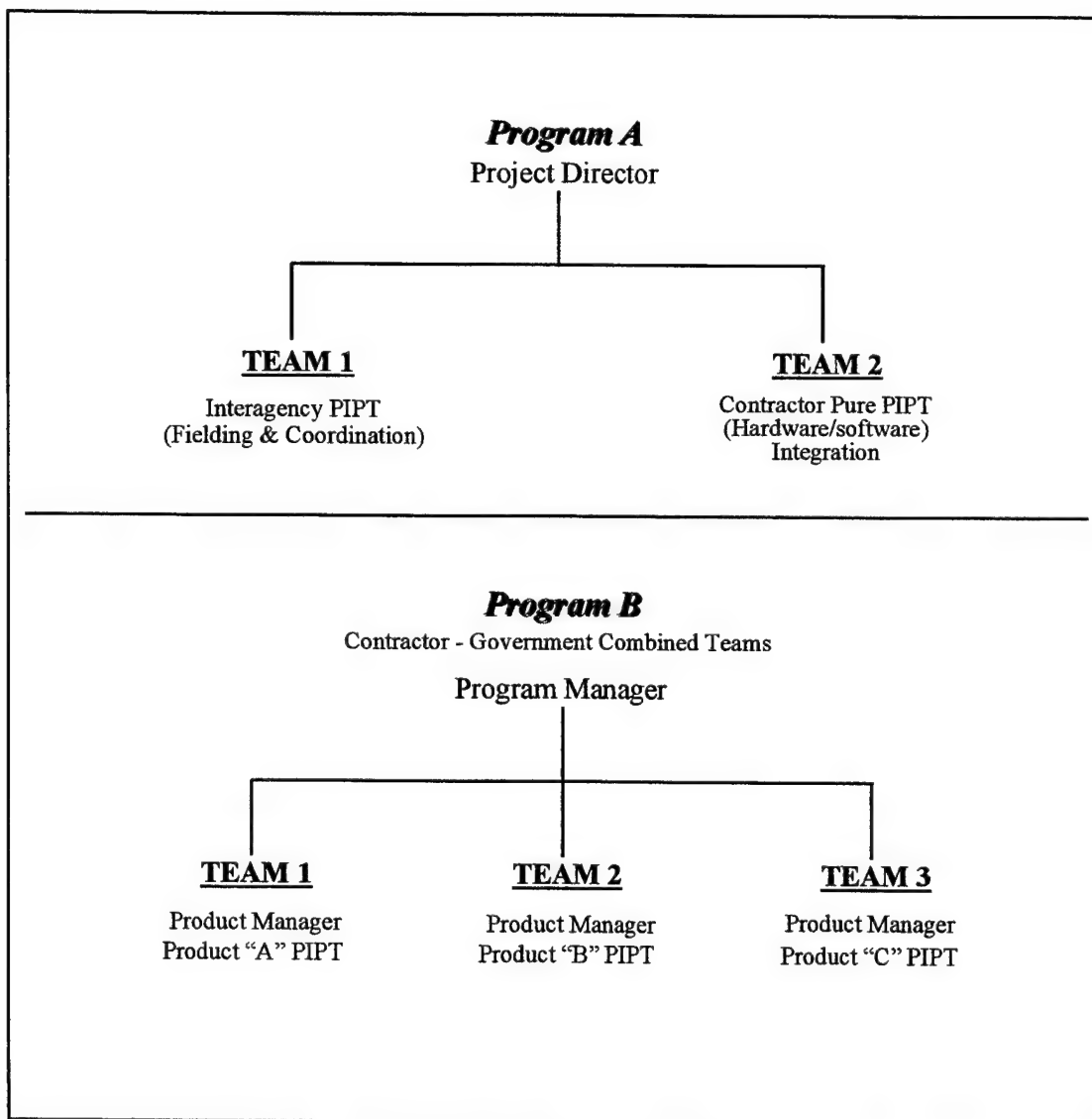


Figure 4. Teams Participating in the Research

## 2.    Collecting the Data

Interviews conducted with the Program Managers were designed to gather data pertaining to how PIPTs are structured, managed, led, and trained within the program office. The questions also asked managers to describe the decision making and conflict resolution processes used by their teams, and to share some of the challenges and pitfalls associated with implementing the PIPT concept in their organization. The following interview questions were used in both the face-to-face and telephonic interviews.

<u>**Interview Questions for Managers**</u>

1. Define PIPT(s) in your organization:

     a.  How many PIPTs are used in your program office and what is their purpose?
     b.  Who leads the team, assigns tasks, schedules work, evaluates performance, and coordinates actions?
     c.  Who is on the team and why were they selected?
     d.  How was the team trained?
     e.  Who appointed the team leader and what criteria were used to select him/her?
     f.  Are you, as the Program Manager, involved in the PIPT meetings? If so, in what capacity?

2.  What do you consider to be the critical factors necessary to have a successful PIPT? What makes your team effective or what keeps them from being more effective?

3.  How do your teams manage conflict and resolve areas of disagreement? What is your role, as the PM, in resolving conflict?

4.  Is the PIPT concept being welcomed and accepted by the team members or is there resistance to implementing the PIPT philosophy? If there is resistance, why do you think it exists?

5.  What were some of the challenges and pitfalls you experienced in implementing PIPTs in your organization and what advice do you have for other PMs who are in the early stages of PIPT development or

implementation? In retrospect, what, if anything, would you have done differently with regard to the organization, training, development, and management or your PIPT(s)?

6. On a scale of 1-10, with ten being the best rating, how would you rate the effectiveness of your PIPTs? Why? What could be done to make the team more effective?

The questions presented to team members and team leaders were designed to collect data pertaining to how much time each member devoted to PIPT specific issues, what special skills they brought to the team, any PIPT specific training they had received, team input into the workings and focus of their assigned PIPT, and their interpretation of what the role of the PM is, or should be, in the PIPT process. Team members were also queried as to the methods their teams used to resolve conflict, the atmosphere of the team meetings, and how the PIPT concept and philosophy was being received by the team. The interviewees were also asked to identify what they considered to be critical elements for successful PIPTs and to rate the success of their team. The team member interview questions follow.

## Interview Questions for Team Leaders and Members

1. Define PIPT(s) in your organization:

 a. How many PIPTs are you assigned to and how much time do you spend on PIPT business?
 b. Who leads the team, assigns tasks, schedules work, evaluates performance, coordinates actions?
 c. Why were you selected to be on the PIPT? What are your special skills and experience?
 d. What kind of training did you receive to prepare you to be a PIPT member?
 e. How was the PIPT leader selected to lead the team?

2. The PMs role on PIPTs:

  a. Does the PM attend PIPT meetings; if so, in what capacity?
  b. Do you think the PM should have more or less direct team involvement? What do you think his role should be?
  c. Are the team's goals and objectives clear? Is the team involved in setting those goals?
  d. Do you receive feedback on the effectiveness of the team?
  e. How are decisions made by the team?

3. What do you consider to be the critical factors necessary for successful PIPTs? What makes your team successful or is keeping your team from being more effective?

4. Is the PIPT concept being welcomed and accepted by the members of your organization or is there resistance to the PIPT philosophy? If there is resistance why do you think it exists?

5. What is the PIPT atmosphere like? Do you feel like your PIPT is truly a team? Do you feel free to disagree, criticize, and present new ideas? Do the PIPT members listen to each others ideas?

6. How does your team manage conflict and resolve areas of disagreement? What is the PM's role in resolving conflict?

7. What, if anything, should be done differently with regard to the organization, training, development, and management or your PIPT(s)?

8. On a scale of 1-10, with ten being the best rating, how do you rate the effectiveness of your PIPT? Why do you give that rating? What can be done to increase the rating?

### a.   *How Interviews Were Conducted*

For all but one of the face-to-face interviews, the list of appropriate interview questions was forwarded to the interviewees well in advance of the scheduled interview. Electronic mail was used almost exclusively to distribute the interview questions. Before conducting the interviews, interviewees were informed of the purpose of the interview and

advised that no individual or organization would be specifically identified in the thesis. The researcher decided that anonymous interviews would result in a more candid disclosure of information by the interviewees and would create a more relaxed atmosphere in which to conduct the interviews. The researcher also requested, and in all cases received, permission to tape record all interviews. Voice recording proved to be invaluable in that it allowed greater accuracy and interpretation of the responses and expedited the interview process. By tape recording the interviews, the researcher was able to keep a sharper focus on the administration of the interview and limit each session to not more than 30 minutes.

Telephonic interviews were conducted when distance, time, or cost made face-to-face interviews impractical. The procedures for telephonic interviews were identical to those used for face-to-face interviews. Telephonic interviews were also voice recorded and limited to 30 minutes.

The researcher maintained a separate response form for each interview which included all of the administrative information (such as name, telephone number, email address, etc.) needed to reestablish contact with the respondents if it became necessary. All completed response forms were indexed and cross-referenced to the appropriate audio tape used during the interview.

*b.*      *Site Visits*

A site visit was conducted at a location where two program offices shared the same building. The researcher selected the organizations for participation in the study based on the convenience and efficiency of using co-located program offices, accessibility to a variety of product teams, the apparent success of the program offices, and the enthusiasm and

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willingness of the PMs to participate in the thesis research. The researcher first established a point of contact (POC) in one of the program offices. The POC then assisted in the coordination and scheduling of all interviews, arranged for the necessary security related clearances and access to both program offices, and validated the researcher's proposed itinerary with potential interviewees.

The site visit lasted four working days and included face-to-face interviews with one Project Director, two Program Managers, one DA selected Product Manager, three team leaders, and eight PIPT members who represented three different PIPTs. Telephonic interviews were conducted with two PIPT leaders and two team members who were unavailable during the site visit. The visit also included briefings designed to familiarize the researcher with the objectives and missions of each program office.

### c. *Analyzing the Findings*

The data recording procedures used for this research were note taking and voice recordings. Voice recordings were the primary medium used to capture the data since it allowed the researcher to focus on the administration of the interview and maintain a natural, conversational flow. Hand written notes were recorded as a back up to the tapes and provided an administrative record of the interviews.

Once all interviews were completed, the researcher transcribed the data captured on the tape recordings into written text, combining those data with the hand written back-up notes. The responses were then consolidated into a master interview response sheet for the appropriate type of interview (PM or Team Member). The master interview response sheets further facilitated sorting and analysis of the data.

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# IV. RESEARCH DATA PRESENTATION AND ANALYSIS

## A. INTRODUCTION

This chapter presents and analyzes the data gathered through interviews with program managers and PIPT members from the three teams that participated in this study. The teams, for sake of anonymity, will be referred to as the Interagency Team, Contractor Pure Team, and the Government-Contractor Combined Team. Program managers, in this study, include a Project Director, Product Manager, and senior civilian managers serving in the program offices.

Section B of this chapter describes the structure of each team, identifies the depth of PIPT specific training provided to each team by the program office, and examines how the PIPT concept is being accepted by each of the three teams studied. Section C focuses on each team's management style, presents their decision making and conflict resolution processes, discusses the role of the Product Manager or Project Director, describes the team atmosphere, and identifies some of the implementation challenges faced by each team. Section D will summarize this chapter, focusing on the commonalities and differences between the three teams.

## B. TEAM DESCRIPTIONS

### 1. Mission and Structure

#### a. Interagency Team

The mission of the Interagency PIPT is to coordinate the efforts of several Government and DoD agencies responsible for the integration and fielding of a wide area

communications and data distribution network. The team was formed by, and reports to, a Department of the Army selected Project Director and consists of an Army Major, a General Service (GS) logistics expert, a user representative, several computer and communications specialists, and a mix of action officers empowered to represent their particular Government agencies. The project Operations Officer, by virtue of his position as a senior Government official, was appointed by the Project Director to lead the Interagency PIPT. Although other agencies involved in the program sometimes host the PIPT meetings, the senior project office representative, the Operations Officer, always leads the team.

The Interagency Team meets every four to six weeks to coordinate actions, resolve issues, and make decisions which effect all of the agencies involved in the program. In addition to the regular PIPT meetings, the team has off-site meetings every four to five months. The off-site meetings tend to be more technically focused, looking more at the processes and technologies used in the program and less at coordination issues. Although the Interagency PIPT is structured as a dedicated team with a core of regular members, the team is supplemented with computer or communications experts, as needed, to help resolve complex, highly technical problems.

Members are chosen to be on the Interagency Team "not only because they are knowledgeable in their particular functional area, but because they have power and position within their agency and can make decisions for their agency." Team members are empowered by their organizations.

### b. Contractor Pure Team

The contractor pure team is led by a senior software engineer who inherited

the job of team leader by virtue of his position in the parent organization. The contractor team is focused primarily on resolving technical problems, providing the Project Director with guidance and counsel on all technical issues, and assessing the feasibility of inserting new technologies into the program. The team leader described the contractor PIPT as "a forum to guide the program and explore new technologies that may be applicable to the program."

The core team consists of three software engineers, one systems integrator, one senior design engineer, and a logistics expert. In addition to the core team, other functional area experts may be asked to attend PIPT meetings, on an as needed basis, to help resolve issues appropriate to their speciality area. There is no Government participation at these meetings unless specifically invited by the team leader.

The team meets for approximately one to two hours each week. Meetings are used to "smooth out issues" and allow the contractors to "speak with one voice" on all program related issues when they attend the Project Director's weekly staff meeting. The meetings are also used to review project milestones, set objectives for the technical aspects of the program, and to assess the effectiveness of team processes.

c.      *Government - Contractor Combined Team*

The Government-Contractor Combined Team consists of a military, Government civilian, and contractor mix of people that includes software engineers, hardware engineers, systems engineers, and functional area experts representing testing, requirements tracking, business, readiness, and other technical fields pertinent to the program.

The Government - Contractor Combined Team that participated in this research is one of three dedicated PIPTs created by the program office to develop a product

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which is a sub-system of a larger system. The team is led by an Army Major who was appointed by the Product Manager based on "a record of proven military leadership experience and technical (computer hardware, software, and testing) experience." Although each of the three teams in this program office have their own sub-specialities and areas of focus, all of the teams support development of the same end product.

Although the team is designed and structured as a dedicated PIPT, none of the teams in this program office really remains pure. The three Product Managers in the program move people and task organize as their particular product evolves and moves to new phases. As one Product Manager explained, "There are skills on every team that are, at times, needed by one of the other teams, so it makes sense to move people as needed to support the mission at hand. Teams are fluid and intermingled, much like a matrix organization, since there is a limited amount of talent available for use." The Program Manager described how his three Product Managers structure their teams:

> Each [product] team is tailored by the Product Manager depending on where they are in the acquisition process or phase of the program. If he's in the production phase, there is a heavy orientation and more support is provided from our readiness directorate. The team will have more readiness, quality, and test people on it. If the product is in the R&D [research and development] phase, there is a heavy [manning] level of software and hardware engineers. The composition of the teams change as we progress through the [product's] lifecycle.

### d.    *Link to Literature*

The Interagency Team, while working directly for the Project Director, functions much like an integrating product team. The literature defines one area of responsibility of the Integrating IPT as being "...responsible for coordinating the efforts of the

individual WIPTs and ensuring that issues not addressed by any of the WIPTs are resolved at some level in the IPT structure." The Interagency Team members are the coordinating action officers for their particular Government agencies or departments (much like IIPT members representing WIPTs). As such, they are empowered to resolve issues on behalf of their parent organizations for the good of the program.

Although the Interagency PIPT meets at regularly scheduled intervals and retains most of its members throughout the life of the project, an attribute of "dedicated teams", they more closely resemble and exhibit the characteristics of "meetings only" teams, as defined by DiTrapani, in that the team members:

- Represent different organizations

- Report to different supervisors

- Are geographically dispersed

- Are allowed to work full time on other projects

Both the Contractor Pure team and the Government-Contractor Combined Team clearly exhibit the characteristics of "dedicated teams" since they:

- Operate together continuously

- Are co-located

- Remain on one specific project for the life of the program

- Are in touch with each other on a daily basis

- Are considered part of the program office structure

## 2. Training

### a. *Interagency Team*

Although the Project Director and project Operations Officer have been exposed to some limited IPT education through Army schools, professional journals, seminars, and workshops, there is no PIPT specific training being conducted for the Interagency PIPT. Most of the team members stated that they have "read about IPTs on their own time and have talked about the IPT concept with co-workers, but that is the extent of their training."

### b. *Contractor Pure Team*

The Contractor Team also had no IPT specific training. The contractor PIPT was described by its members as evolving from an earlier form of teaming called a BOESAT, a "Bunch Of Engineers Sitting Around A Table." The BOESAT meetings were attended by engineers only. These informal and unstructured meetings were used to discuss engineering specific issues and problems, and to share ideas or ask for help on the technical aspects on a variety of projects. As IPTs began to form in Government program offices, BOESATs evolved, becoming a more formalized mechanism for coordinating the work of a mix of functional area experts. BOESATS became the contractor's model for what they now call a PIPT.

### c. *Government - Contractor Combined Team*

While there is no PIPT specific training being conducted by the combined team's program office at this time, there was some formal team training conducted when the program was formed. When the contract was first awarded to a major defense contractor,

the Government program office contracted with an outside agency to conduct what was described by one of the interviewees as "basically a short course in teaming." The training was conducted in three phases and was attended by members of the prime contractor's team and personnel from the Government program office. Phase one of the training was a "sensing session", phase two focused on "basic team building techniques", and phase three was designed to train leaders "how to resolve problems and manage group interaction." Team members attended the phase one and phase two training and team leaders attended the phase three training. However, PMs found formal PIPT training to be too time and resource intensive so the program was discontinued.

However, it was noted that informal training in team skills also occurs on the job. One team member observed, "...the PIPTs themselves are a form of training." He further explained that "...team participation broadens each member's knowledge base by providing cross training and cross fertilization among the team members merely by their existence. Participation on a PIPT helps prepare people to be good managers."

One explanation as to why there is no PIPT specific training program was offered by a senior manager assigned to the program. He stated,

> ...the fact that there was no individual training specific to the PIPT process was not an oversight, but [the training] was not considered necessary since the folks on this program are used to working tasks collectively and working across functional areas with others who have diverse backgrounds. The individuals [on the program] already had developed a lot of the skills needed to work as a team

### d.    Link to Literature

DiTrapani (1996), describes the importance of training to team effectiveness

based on research specifically conducted on IPTs:

> ...PMs who fail to invest in adequate PIPT training risk poor team performance. Training plans must provide PIPT members with at least the minimum skills necessary to be effective team players and must set aside the appropriate amount of time needed to conduct quality training. Too little training leaves team members unprepared to deal with the dynamics of the teaming process....

In addition, the research literature identifies critical skills required for successful team building [Mohrman, Cohen, and Mohrman, 1995, p. 248]. By making the decision to not implement even the most fundamental team training program within their organization, Program Managers not only lose the ability to maximize the effectiveness of their teams, but also risk empowering teams who do not have the basic, minimum essential interpersonal and team building skills.

### 3. Accepting the PIPT Concept

#### a. *Interagency Team*

The majority of Integrated Team members agreed that the PIPT concept is generally well received. The Project Director commented, "Everybody wants to be involved [in the PIPT] and we could actually use more teams to work on issues such as pre-planned product improvement, but we don't have the people to support them." One of the senior members of the team, who had served in many program offices during his fifteen years of acquisition experience stated, "This program is running smother than any other program I have been associated with as a result of the PIPT. The team allows us to smooth out problems and resolve issues before they become bigger problems."

The Project Director noted, "...there is some resistance to the teaming concept.

There is a human element involved and some people just don't like the idea of working as part of a team." However, the consensus among those interviewed on the Interagency Team is that the PIPT is well regarded and contributes greatly to the success of the program.

### b. Contractor Pure Team

The consensus among members on the Contractor Team is also that the teaming concept is being well received. That acceptance is supported in a quote by one of the team members, "Overall I think people like it, the younger 'techies' in particular love it, they like the exchange of ideas and viewpoints. Things are improving because of the overall dialogue that goes on at the PIPT meetings." But, the same individual who made the previous statement also cautioned, "There is some definite resistance because of the blurring of responsibilities and the fact that PIPTs add work. Everyone has enough work to do and they don't want to run around worrying about someone else's piece of the puzzle." Yet another team member observed, "you have to be open minded and not get stuck on your own ideas, but there are still some who want to 'pound the gavel' and say they have the solution." In other words, while teaming offers an important forum for the coordination and integration of cross-functional perspectives, PIPTs also increase the workload and require that people be open to conflicting points of view.

### c. Government - Contractor Combined Team

There were mixed feelings as to how PIPTs were being accepted in this program. One member commented,

...people generally agree with the teaming concept, what gets in the way is that you have a select group of people assigned to the PIPT and they have other missions

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within the project office they still have to work on. So you have conflicting priorities and numerous missions that take away from a person's ability to focus on the PIPT, or to give that PIPT as much attention as they would like to. You always have several other alligators biting at your heels.

A senior leader in the program office also observed mixed levels of acceptance:

There is a lot of resistance to teaming. In our program office, the average age of the workforce is well over forty. When you have a workforce that is that senior, you get a lot of folks who are set in their ways because they have been operating one way for a long time. They are used to working their little slice of the project, then tossing it back in for the next guy to do his part. They resist stepping out of their functional area and looking for a solution that is for the good of the product, they still look at what is best for their functional area. However, there is another group, typically younger, who are really the ones who make things happen and support the teaming concept.

There are some who feel that PIPT is just another "buzz word", a new name for other forms of teaming that have been around for a while. However, that opinion of the PIPT process was clearly in the minority and even those who saw teaming as "nothing new", agreed that whatever you call them, PIPTs are still effective if they are managed and run properly.

### d.    *Link to Literature*

Much of the literature reviewed in this study addressed the cultural change that must occur if an organization is to embrace the teaming concept. Mohrman, Cohen, and Mohrman (1995), theorize that to use PIPTs effectively, an organization must move away from a traditional, hierarchical structure. Moving to a team based organization requires not only a structural change, but also a change in the way people think and behave within the

organization. This cultural change will affect people in different ways. While some will embrace the concept, others may find the new processes and systems unsettling and disruptive. The interviews conducted in this research revealed mixed feelings and levels of acceptance toward the teaming concept.

### 4.    Team Self-Assessment

In order to gain an understanding of how team members viewed the effectiveness of their teams, the researcher asked all interviewees to rate their PIPTs on a scale of one to ten, with ten being the best possible rating. After providing a rating, interviewees were asked to comment on what must be done to raise their team's rating to a perfect ten.

#### a.    *Interagency Team*

The Interagency Team gave their PIPT an average effectiveness rating of seven, with responses ranging from six to eight. Members commented that the team could be more effective if communications between the many agencies represented on the team and communications with higher levels of management within those organizations was improved. Program leaders also believed the team would be more efficient if members were provided with basic team building, interpersonal, and communications skills. The team leader also noted that if the team is to improve, he must find a way to get everyone on the team to "pull in the same direction." Another member commented that methods used to resolve problems that arise in between scheduled PIPT meetings need improvement if they are to stay within the spirit and intent of team decision making:

> ...the team needs a better way to work issues which arise in between scheduled meetings. Presently, as issues arise, only selected members get involved with

resolving them. They then present the [already decided upon] course of action at the next scheduled PIPT meeting. We need to work those issues with less limited participation.

### b. *Contractor Pure Team*

The Contractor Team gave themselves an average effectiveness rating of six, with responses ranging widely from three to eight. Members cited the need to "clean house" and get rid of those team members who are not contributing to the team. One member commented that there are "still too many 'loners' who do not work well on teams and do not support the PIPT concept. Members also identified the need to set aside time for specific PIPT training, the need for a more structured agenda, better team focus, and the importance of clear guidance as critical to the team's success.

> ... teams need clear guidance [from senior management], a good understanding of where the team fits "in the big picture"and where it is supposed to be going, and must know what it is expected to accomplish. Agendas must be clear and better records of the team's meetings must be maintained and disseminated. General administration of the meetings must be improved.

### c. *Government-Contractor Combined Team*

The average effectiveness rating assessed by the Government-Contractor Combined Team members was 6.6, with individual responses varying from five to seven and a half points. Team members felt their effectiveness could be improved through better communications between higher levels of management and the team. Members commented that the senior leadership could do a better job of providing clear guidance and ensuring that

all members of the team clearly understand the guidance and its intent. One of the senior leaders cited performance recognition as another area needing improvement. He stated, "The system has to support leaders in getting rid of unproductive team members and must reward truly superior performance. At present, the system makes it difficult to remove poor performers or identify stellar performers." The PM also addressed the lack of formal, PIPT specific training as an area having great potential benefit to the team:

> [If we are to improve team performance]...leaders must continue to support the teaming concept and look for ways to get people the interpersonal and team skills they require. Training should be paid for by the PM, since it is an investment in program effectiveness, but conducted outside of the workplace through programs such as night school, correspondence courses, and seminars, so the time invested in training will not interfere with the busy workload of the program office.

Finally, one team member noted that the PIPT concept is still relatively new. He stated, "The team simply needs more experience working with the PIPT concept. We will improve in time."

### d. *Link to Literature*

Many of the observations made by team members support the themes presented in the literature review. Communications within the team and between all elements of the program was identified as needing improvement. The need for PIPT specific training, to include interpersonal and team building training, was identified as an area that, if improved, would greatly increase the effectiveness of the team. Members also cited the lack of a reward system to identify truly superior performance as a problem area. Finally, the respondents noted the importance of structuring the PIPT with the right mix of functional skills and

stressed the importance of full, open, and honest participation by all members during team meetings.

## C.   TEAM PROCESSES

### 1.   Team Management

#### *a.   Interagency Team*

The Interagency Team clearly exhibits the characteristics of a self-managed work team as described in Chapter II, section D, of this study. The team assigns themselves tasks, establishes their own timelines and work schedules, coordinates actions among team members, resolves conflict internal to the team, and crosses organizational boundaries to coordinate with groups external to the program as necessary.

The team leader acts as a facilitator, keeping the team focused on the agenda, but does not dominate the group discussion in any way. The team leader described his management style as follows: "I provide direction at the meeting [based on the agenda], lead the discussions, and act as the final authority when consensus cannot be reached."

The team also has "total input to the master schedule that drives the team's agenda. We set that agenda based on outstanding actions, ongoing issues, new requirements, and changes which have come up since last PIPT meeting."

Although the PIPT operates with a lot of autonomy, it must be noted that the team is not totally self-sufficient. The Project Director has significant interaction with the team. The Project Director is responsible for bridging the work of the team with the goals of higher levels of management, providing feedback to the team on all issues that impact on the program, and ensuring the PIPT understands performance requirements and user needs.

In many instances, team members are selected to be on the PIPT because of their position and influence within the parent organization. Team members are "empowered to speak for their bosses and are assigned to the PIPT because of their knowledge or experience in the program, and because they have the power, by virtue of their position in the agencies they represent, to make things happen when they return from the PIPT meeting to their departments."

There is no formal method of providing feedback to the team as to their effectiveness as a team. The team leader provides feedback to those individuals he feels need to improve their performance. The primary metric used by the team leader in assessing performance is whether or not the team is completing tasks on time and in accordance with the master schedule.

### b. Contractor Pure Team

The Contractor Team is also a self-managed work team. Though more loosely structured than the Interagency Team, the Contractor Team still sets its own agenda, goals, and objectives. The Contractor Team's agenda is normally focused on two areas. First, using the Project Director's pre-published weekly staff call agenda as a guide, the team prepares its position for each issue to be discussed at the staff call. Second, the team examines the status of all ongoing actions or projects which are the responsibility of the team.

Sometimes there are "...side bar meetings for issues that come up between regularly scheduled team meetings. When this happens those individuals with the skills needed to work the issue will break-off into sub-teams to solve the problem or work the issue."

The team leader is empowered to make decisions on behalf of the organization and run the team as he sees fit. He describes his level of empowerment in this way, "... I can pretty much do [make decisions] whatever I want as long as I can show I made the decision rationally. I think about it, then make a decision. There is no time to sit around and wait for some mystical power to tell me when to move out" However, although the team leader has the authority to speak for the group, the full PIPT is normally gathered when the Project Director seeks advice from the Contractor Team.

There is no formal mechanism for feedback or evaluation of the effectiveness of the team. The feedback that is received normally comes from the Project Director through off-line discussions with the team leader and focuses on the overall success of the mission, not specifically on the effectiveness of the teaming process.

### c.    *Government - Contractor Combined Team*

The Government - Contractor Combined Team uses a modified traditional management style. On this team, the Product Manager assigns tasks, establishes the team charter, and provides explicit guidance to the team. However, the team is still responsible for creating their own work processes, scheduling meetings, and coordinating actions between other work groups involved with the program. One team member described the management style in this way, "Most everything [guidance and goals] is put out by the Product Manager through the team leader. There are a lot of 'side meetings' and one-on-one sessions between the engineers, or other functional experts, and the Product Manager. This sometimes leaves the PIPT out of the loop."

One of the senior members of the program office commented on the

differences between team management styles within the program office:

> The amount of team involvement in their [the team's] own management depends, to a great extent, on the personality of the Product Manager. We have a couple of teams [in the program] that are almost like committees [self-managed], and one team that is run with a fairly tight chain of command and a lot of directed management.

Individual team members are, in most cases, evaluated in some way by the team leader. He or she reviews that member's contribution to the PIPT and gives the individual guidance and direction. "The team leader may have either formal or informal input into the members evaluation depending on the length of time the team is in existence." Teams are not being evaluated "as teams" in this program office, only individual performance is formally recognized.

### d. *Link to Literature*

The Interagency Team and the Contractor Pure Team clearly exhibit the characteristics of self-managed work teams as presented by the research of Mohrman, Cohen, and Mohrman (1995). Those two teams depend on the Project Director primarily for guidance, resources, and as a link to higher levels of management. The teams themselves assume the responsibility for their processes, scheduling, and general management roles which would normally be the responsibility of a functional area manager in a traditionally managed organization.

The Government-Contractor Combined Team uses a mix of traditional and self-managed characteristics as identified in the literature. The Product Manager, through the team leader, provides specific direction and explicit guidance to the team, much like a

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traditionally managed organization. The team then takes that guidance and determines how to best meet the Product Manager's requirements.

## 2. Role of the Project Director or Product Manager

### a. Interagency Team

Although he does not attend most of the PIPT meetings, the Project Director has "ultimate responsibility" for the success of the team. When he does attend, it is to provide clarification or guidance to the team, to generate enthusiasm and motivation, or to provide vision and focus for new projects.

The Project Director is in constant conversation with the customer and the heads of all agencies involved in the program. As such, his primary role is to coordinate with those higher levels of authority and keep the PIPT informed on key actions, events, and decisions that may impact on the project. One of the team members described the Project Director's role in this way, "There are several critical Government agency structures involved in this program, the Project Director's main job is to coordinate between those elements at the top levels."

### b. Contractor Pure Team

The Project Director gives the Contractor Team focus, provides direction, and establishes priorities, goals, and objectives. Given that guidance, the team then sets its own agenda and figures out how best to get the job done to satisfy the cost, schedule and performance requirements identified by the Project Director. The Project Director is not normally "invited" to the Contractor Team meetings. As one team member put it: "it is much easier to sit down and argue about a concept or idea on how something should be done

without a Government person sitting there misinterpreting our discussions and arguments as dissension in the ranks." The Contractor Team leader described the Project Director's role this way, "There are two primary hierarchical structures involved in the program, the contractor has one chain of command and the Government has their chain. The Project Director is responsible for coordinating actions at the top of each structure." As far the contractor PIPT is concerned, "he [the Project Director] is welcome to come sit in on team meetings to see how the process works, but he is not welcomed as an active participant on the team. That is what his staff meetings are for."

### c.    *Government - Contractor Combined Team*

On this team, the Product Manager attends meetings at the invitation of the team leader or if he wants to discuss "hot" topics or critical issues. Many of the team members interviewed in this study described the role of the Product Manager as one of general leadership:

> The Product Manager's role is general leadership. Those Product Managers who are successful have good leadership skills, and good people skills. Looking out for people, setting high standards, and keeping the team informed are key. Before we [on this program] used PIPTs, we had Red Teams, Material Fielding Teams, and other teams, but until we put them together [as co-located and dedicated teams] they did not act like teams or feel ownership for the product. Their allegiance was to their functional area, not the product. They did not feel a responsibility to make the product better or feel that sense of ownership. Well managed teams with solid leadership are producing a group of future managers who understand more about the various functional disciplines involved with making a program work. They also know how to make people work together to get the most out of the combined expertise available in the organization.

The team leader revealed that the PMs presence can sometimes create a

leadership challenge for the team leader since team members tend to look to the most senior person in the group for decisions:

> When the Product Manager does attend [PIPT meetings], it sometimes causes problems for the team leader. When decisions must be made, it's quite natural for team members to look to the Product Manager for answers to the issues at hand instead of allowing the team leader to work with the team to find solutions or make decisions. When decisions need to be made, I will ask the Product Manager not to attend so there is no confrontation [confusion] as to who is in charge of the meeting.

### d.    Link to Literature

G.M. Parker [1996, p. 99], describes effective team leaders as:

> People who create an inspired vision for the organization, communicate a sense of enthusiasm for the effort, and are honest and authentic in their interactions with people.

The vision, enthusiasm, and honesty which Parker writes about is primarily what team members seem to be looking for from leadership at the Project Director or Product Manager level.

The Interagency Team sees the Project Director's primary role as one of "generating enthusiasm, motivating the team, and providing vision and focus for new and ongoing projects." Several of the team members interviewed in this study viewed the Project Director and Product Manager's roles as those of providing "general leadership" to the team. They expect that level of leadership to use "good leadership and people skills, look out for people on the team, and set and enforce high standards for the team."

The other leadership roles identified by Parker (1996), the leader's role as a

contributor, collaborator, communicator, and challenger, are roles that team members see as being more pertinent to the team leaders and not the role of the Project Director or Product Manager. It is the team leader, members believe, that should be the kind of leader who "rolls up his or her sleeves and gets to work with the team" (Collaborator Leader), participates directly in setting goals and resolving issues with the team (Communicator Leader), and establishes an atmosphere conducive to good team building (Challenger Leader).

The team members interviewed in this study see the primary roles of the Project Director and Product Manager as "...having ultimate responsibility for the project and the people involved in the project; providing vision, motivation, and enthusiasm to the team; and coordinating with higher levels of management on behalf of the PIPT."

### 3. Decision Making and Conflict Management

#### a. *Interagency Team*

The Interagency Team makes decisions by team consensus. "The team discusses all of the "pros and cons" and "advantages and disadvantages" of an action before making a decision. However, when a *technical decision* must be made, the agency representative or team member with the most expertise or experience pertinent to the issue at hand usually takes the lead." Due to the diversity of the PIPT, team members will not always know enough about the matter under discussion to make an informed decision. In those situations, members will usually defer to the person with the experience and skills appropriate to the issue at hand. Sometimes an agency's standing policies or existing regulations and laws dictate the required action. Therefore, the PIPT leader relies on each team member to be an expert on the laws and regulations that pertain to his or her particular

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agency.

If the team cannot reach consensus on an issue, the team leader will attempt to resolve the conflict himself. If he cannot resolve the problem, the matter will be elevated to the Project Director for resolution. The Project Director described his role in conflict resolution as follows:

> Serious disagreements are few, but if they can not be resolved by the team leader, the boss decides. If the team is at an impasse, or if an issue is time sensitive, or if we just need to get on with the program I will step in and make a decision. Sometimes, due to the diverse nature and the number of Government agencies represented on the team, I may depend on the agency expert at the higher level for advice.

### b.      Contractor Pure Team

The Contractor Team also uses consensus as its primary means of decision making. The team leader describes the process as follows:

> Decisions are normally made by consensus. In some cases it is quite clear that one person on the team has the vast majority of the expertise or experience in a particular area, in which case the group usually defers to that expert. At other times, everybody has an opinion and it might take longer to reach consensus. But, I don't ever recall having to take a vote to settle a matter, consensus is usually reached through powers of persuasion or by recognizing a persons expertise in a given area.

Even though the decision making process is greatly influenced by the most experienced members of the group, that does not prohibit people from disagreeing with the more experienced experts. "The group listens to what everyone has to say, regardless of their level of experience, and if their idea is a legitimate 'good idea' it is accepted."

The Project Director gets involved in the process once the team has identified

all of the potential consequences or risks for a given course of action. Once the risks have been identified, the Project Director decides whether those risks are acceptable or if the team needs to re-look their recommendation. Sometimes the team will present a decision paper or point paper to the Project Director to assist him in making a decision, but most issues are resolved verbally either at the team meetings or the Project Director's weekly staff meeting.

It is rare that conflict cannot be resolved through more discussion and persuasion. If the team becomes stuck on an issue, it will either defer it for later review, or if the matter is time sensitive, present all arguments to the Project Director for advice or further guidance.

### c.     *Government - Contractor Combined Team*

The Government-Contractor Combined Team uses a more hierarchical approach to decision making. "If the issue is technical in nature, the appropriate technical members of the team get together, discuss it, develop a recommendation, and present it to the team leader. If there is a question they can't answer, and no one else on the PIPT can answer it, we go to a third party for input." The team leader noted that "due to the caliber of the technicians working for us [the PIPT], very rarely do we second guess or go against their recommendations." The technicians also tap the resources of their parent organization and all of the contractor expertise involved in the program before presenting a recommendation. Rarely do they get a recommendation where there is not consensus among the technicians. Once the team develops their recommendation, a decision is made by the PIPT leader who "absorbs the information put out by the group, then decides on the appropriate action to be taken."

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Conflict is normally resolved by the team leader as problems arise within the PIPT. If there is conflict between the PIPT and other teams within the program office, it is usually resolved team leader to team leader. If the team leaders cannot resolve their differences, the issues are elevated to the Product Managers.

When disagreement comes from a clear minority, the team leader will talk to those who disagree outside of the PIPT meeting. "Once the decision has been made by the team leader, most people accept it and drive on with the program. In situations where there is a near equal split between members, the team goes back and re-looks the issue."

One of the senior managers in the program office made this observation about the decision making process in the organization:

> There is no one answer to how a team leader handles conflict and decision making, it depends on the personality of the leader. Some team leaders take charge and make the decisions themselves while others use a more collective management style looking for consensus. To be effective, there needs to be a balance of both styles, the leader needs to know what will work best in a given situation.

### d. *Link to Literature*

Systematic decision making processes are methods of collecting data, evaluating alternatives, and determining outcomes [Mohrman, Cohen, and Mohrman, 1995]. Although all three of the teams studied in this research have decision making processes in place, not all of the teams are using processes that are consistent with what the literature identifies as good teaming practices.

As the OIPT-WIPT Guidebook points out, PIPTs are intended to be a shift away from the traditional, hierarchical style of decision making. In that regard, the

Government-Contractor Combined Team does not demonstrate a decision making process consistent with good teaming practices. Instead, the team adheres to a more traditional decision making approach. But, the Government-Contractor Combined Team is addressing not avoiding conflicts and that in itself is a demonstrated characteristic of successful teams (Hocevar, Thomas, and Thomas, 1996). The Interagency and Contractor Pure teams both use a decision making process built on consensus and is therefore consistent with good teaming.

All three teams are consistent in one respect; their conflict management and decision making processes follow their basic management styles. The Interagency and Contractor Teams resolve conflict in the same way they make decisions, through group consensus, while the Government-Contractor Combined Team charges the team leader with the responsibility and authority to resolve conflict.

### 4. Team Atmosphere

#### *a. Interagency Team*

The atmosphere on the Interagency team was generally described by those interviewed as formal, but very open and participatory. One team member's description of the PIPT meeting environment, which is representative of the other members interviewed, follows:

> The team works in an atmosphere of free and open communication, but tries to follow the pre-published agenda as much as possible to keep meetings on track and time efficient. The team leader acts as a facilitator for the PIPT, leading the presentation and discussion of issues and problems. The leader lays items on the table for discussion, at which point everyone is invited, and encouraged, to participate and provide input to the team.

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Another PIPT member stated, "There isn't a problem with frank discussion [people stating their viewpoints] on any issue. People feel free to disagree and state their opinions, and often do so in a professional manner. There is normally a good team effort and environment."

### b.     *Contractor Pure Team*

The Contractor Team meetings were described as informal and relaxed. One team member described the atmosphere as one in which "team members feel absolutely free to disagree. We have knock-down, drag-out fights all the time." However, it was noted that, although the meetings can sometimes get "spirited", team members do listen to each other and, in most cases, have a great deal of respect for the expertise of the other members on the team.

With regard to participation during meetings, the interviews revealed that while team members felt free to participate in the meetings, some people provide little input. The researcher sensed, after talking with a number of contractor participants, that those who choose to remain silent at team meetings probably do so due to their personality or because they do not feel technically experienced enough or competent with the particular issues under discussion.

Despite the general openness and effectiveness of the Contractor Team, the team leader felt they were not yet truly functioning as a team. "We still have a way to go to be a real team, people need to think about what's relevant to the PIPT instead of what's relevant to me (their functional area or discipline)."

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### c.     *Government - Contractor Combined Team*

The Government-Contractor Combined Team also functions in a formal, yet open and participatory environment. The atmosphere was described by the team leader in this way:

> We use brainstorming techniques [to resolve issues], the philosophy is that nobody's idea is stupid and everything [ideas presented to the group] will work, it's just a matter of which idea will work best. There is a time limit imposed on the meeting and I hold the team to it. We intentionally keep a broad agenda, I don't want to refine it [the agenda] to the point where members can't bring up their own hidden agendas or prevent us from going off on tangents that may be important to the overall discussion just because it [the item] was not shown on the agenda. But, [at the same time] I don't want chit-chat about things that are not relevant to the PIPT.

Team members described the atmosphere as one in which "people feel free to state their ideas through lively, open discussions in which people are quick to tell you their concerns [about issues] both good and bad. People also listen to what each other has to say."

Participation by team members was described as "shifting depending on the issue at hand. Different members contribute [in varying degrees] as the focus of a meeting changes to their particular area of expertise."

It was also noted that people generally interact and share information well within their team, but that information is not shared very well between teams within the organization. When inter-team interface is needed, members tend to go one-on-one in off-line discussions with the experts they need to talk to on the other teams. When this happens the PIPT is "left out of the loop."

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### d.    Link to Literature

Chapter II, Section F of this study presents some characteristics of effective teams based on the research of several management experts [McGregor (1960), Hocevar, Thomas, and Thomas (1996)]. Subsection one of that section describes an effective team atmosphere as:

> The atmosphere in which a successful team operates can be sensed after only a few minutes of observation. Meetings tend to be informal, comfortable, and relaxed and people seem to be genuinely involved and interested in the issues at hand. There are no signs of boredom and there is a lot of discussion in which virtually everyone participates. The discussion, for the most part, remains pertinent to the task at hand and people are free in expressing their feelings and ideas on any issue that may arise. When the discussion does get off the subject, someone will bring it back in short order. There are few hidden agendas and everybody on the team appears to know how the other members feel about any matter under discussion.
>
> Team members listen to each other. Every idea is given a complete hearing and people are not afraid to present creative thoughts even if those thoughts seem extreme. Criticism is frequent, frank, constructive, and oriented toward removing obstacles that prevent the group from getting the job done.
>
> The leader of the group does not dominate it nor does the group defer unduly to him or her. In fact, the leadership may shift at times and allow the team's functional area experts to take charge as appropriate to the issues at hand. There is little evidence of a struggle for power as the group operates. The issue is not who controls the team, but how to get the job done.

Based on that description, all three teams in the study appear to have established environments conducive to successful teaming.

Team members generally feel free to present ideas to the team and participate out of genuine interest in the issues under discussion. Team leaders generally keep meetings on track and on time by adhering to pre-published agendas. Most important, team members listen to each other and give every idea a fair hearing before a decision is made. The

challenge, however, is extending these dynamics to processes that go outside the boundaries of the team. Effective management of relationships with other teams of the management hierarchy is a characteristic of the most highly successful teams (Hocevar, Thomas, and Thomas, (1996).

## 5. Implementation Challenges

### a. *Interagency Team*

The Project Director responsible for the Interagency PIPT is very supportive of the teaming concept and stated that he believed the program needed more PIPTs. One of the challenges he faced in implementing the Interagency Team - and realizes he must overcome if he is to form other program teams - is the difficulty of measuring PIPT effectiveness. The Project Director addressed that challenge as follows:

> It's difficult to prove [to the other agencies involved in the program] that the PIPT is really worth the effort and time it takes to implement and support them [by providing people and time to the team]. It's hard to come up with metrics that prove to all involved that the teaming process is worth the effort.

The team leader of the Interagency Team, who is also the Project Director's Operations Officer, saw the internal team challenge as building commitment to the team; and that commitment as being influenced by a sense of limited support for the concept from the higher authority of each agency represented on the team. He stated:

> You gotta get everyone assigned to the PIPT [all representing different Government agencies] to buy-in to the PIPT concept, feel ownership for the product, push in the same direction, and get them actively involved in setting goals for the team. That does not always happen. It's difficult to get the various outside agencies represented on the PIPT to do this because each agency has their own priorities. We really need

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a higher level IPT, like an overarching IPT [or integrating IPT] to agree on the priorities that drive the lower level PIPT, and to get higher level management to support the PIPT process.

Other challenges identified by Interagency Team members included the need to "get everyone to feel they are important and contributing to the team" and to somehow work PIPT specific training into the program. It was observed by one team member that those who are selected to be on the PIPT "don't always have the right technical or interpersonal skills to be effective team members." The importance of putting together a good SOP or reference to guide the PIPT was also addressed.

### b. *Contractor Pure Team*

The Contractor Team felt that most of their implementation problems came from a lack of commitment by top management in their parent organization. Members said it was difficult to get senior management to support the IPT since they do not consider the team a high priority. To them the IPT is purely an engineering level meeting and they don't want to know, or get bogged down in technical details. In the following quote, the team leader describes the difficulty of coordinating actions across team boundaries without senior management support:

> It is difficult to get other elements of the organization [such as the test group] to sit down with the IPT early in the development process and participate in our meetings so we can benefit from their expertise. There is resistance because, to them, it's another time consuming tasking that takes away from other priorities. However, they are eventually gonna get my [the team's] product to test anyway...and [chances are] they're not gonna like it. This could be avoided if they get involved with the IPT early. We need a higher level management commitment to do this, we're not there yet.

One of the most experienced and senior team members cited another implementation challenge as the ability to create an environment that de-emphasizes structure and emphasizes creativity related to problem solving processes.

### c.    *Government - Contractor Combined Team*

The Government-Contractor Combined Team identified several challenges to implementing PIPTs in their program office. One member identified the difficulty of getting people to be innovative:

> Getting people to challenge the old ways of doing business and accept, or create, new paradigms is difficult. You are rooting people out of things they have been comfortable with for a long time. Trying to get them to work in a team environment is a difficult transition for some people to make. You have to convince people to retain the good [old] processes while embracing new way of doing business, such as PIPTs.

The Product Manager for this team addressed the challenge of how to provide PIPT specific training:

> It is a real challenge to get people [PIPT members] the interpersonal and technical skills they need [to be effective team players]. You must find training opportunities [outside of the organization] for the team and then encourage them to go out and get that training on their own [such as night school and college courses]. There is a lot of maintenance involved [sustainment training] to keep a team working well.

Another challenge addressed by the Product Manager was what he referred to as the "artificiality of rating schemes." The specific concern relates to the problem of retaining a performance appraisal system that follows the old organizational form of having the functional manager responsible for appraisals rather than the team leader of program

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manager. The Product Manager explained,

> It is common for an individual assigned to the PIPT to be working for one person [the PIPT leader], and to be evaluated by another person [the functional area supervisor in the parent organization]. This kind of rating scheme can create a lot of stress for a team member since his performance is being evaluated indirectly. The parent organization must rely on the assessment of a Government team leader or Product Manager in the team member's evaluation. Not all team members are comfortable with this arrangement and would prefer more direct and frequent contact with their rater or evaluator.

Another implementation challenge identified by a senior manager from the program office was the distribution of talent among the various PIPTs in the program:

> There is a finite number of talented, motivated, aggressive people and every one of the Product Managers wanted to hand pick their teams. Trying to divide up that talent is a challenge and is probably still the most talked about, and most argued about issue in the program. It was like choosing up sides for a sandlot baseball game, there were highly sought over people and there were some individuals the Product Managers did not want on their teams at any cost. There are also functional directors that do not want to give their best people to the teams because they want to keep the talent at home [in the parent organization] where they can be used on other projects.

### d.    *Link to Literature*

Much of the literature on teaming stressed the concept of changing not only the structure and processes within an organization, but also the culture of an organization (the way people think and behave in an organization) if teaming is to be effective. The three teams interviewed in this study identified several challenges relating to the cultural aspect of PIPT implementation.

Interagency Team members noted the importance of "selling the PIPT concept" to higher levels of management and agencies involved in the program to gain their

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support. It was noted that without senior management's support, coordination across team boundaries is often difficult. The importance of getting team members to "buy-in and feel ownership" and getting people to "forget about old ways of doing things and be innovative" are all related to changing the culture of an organization. The PM for this team also addressed the difficulty of establishing metrics that assess how well the PIPT functions as a team.

The Project Director and Product Manager of both programs identified the challenge of getting people the training required to be effective team members. Their concern is consistent with the research presented in Chapter II, Section E, of this study, which identifies six critical skills required for members of successful teams (Mohrman, Cohen, and Mohrman, 1995).

Finally, the training implementation issue can be summarized by quoting from DiTrapani:

> ...PMs who fail to invest in adequate PIPT training risk poor team performance. Training plans must provide PIPT members with at least the minimum skills necessary to be effective team players and must set aside the appropriate amount of time needed to conduct quality training.... too little training leaves team members unprepared to deal with the dynamics of the teaming process....

## D.    CHAPTER SUMMARY

This summary will focus on the commonalities and differences between the three PIPTs studied in this research project: the Interagency Team (IAT), Contractor Pure Team (CT), and the Government - Contractor Combined Team (GCCT). The discussion will be divided into eight subsections:

- Mission and Structure

- Training

- Accepting the PIPT Concept

- Team Management

- The Role of the Project Director and Product Manager

- Decision Making and Conflict Resolution

- Team Atmosphere

- Implementation Challenges

### 1.     Mission and Structure

Although the mission of each team examined differs - the IAT is fielding a product, the CT is focused on software and hardware integration, and the GCCT is developing a new product - all three teams were formed by, and report to, a PM. The IAT and CT both report to the same Project Director who has overall responsibility for the fielding effort. The GCCT reports to a Product Manager who has overall responsibility for the development of a subsystem which is part of a larger program.

The IAT and CT are both structured around a core of functional experts and are supplemented, as needed, with experts from other speciality areas. A major difference between these two teams is that the IAT consists of members from several Government agencies and is therefore, not co-located, as is the CT. In that respect, the IAT has one of the characteristics of a meetings-only team, geographical dispersion. The geographical dispersion requires the IAT to depend more on telephonic and electronic communications

during the intervals between scheduled team meetings. The GCCT is also a dedicated team with a regular, co-located, core membership. However, the GCCT does not retain its "core membership" throughout the product's lifecycle. The Program Manager moves some of the team's personnel between teams within the organization as the product evolves through its various stages of development and production.

## 2. Training

The one commonality found between all three teams is that none of the programs offer any PIPT specific training.

Although there is no PIPT specific training, most of the leadership on all three PIPTs have had limited team building training before joining their respective program offices. The military leadership for the IAT and the GCCT (the Project Director, Product Manager, and team leaders) received limited IPT training as part of their required defense acquisition training and through attending workshops, seminars, and acquisition briefings from higher headquarters. Many members of the CT are either prior military officers with substantial training and experience in team building, or have had some management training included in their civilian education. Also, some of the GCCT members and senior leaders in the organization did receive team building training when the project was initiated. However, while the literature identifies specific team skill requirements which are associated with team success, none of the program offices in this study are providing any sustainment or follow-on training for their PIPTs.

## 3. Accepting the PIPT Concept

The PIPT concept is generally being well received by all three teams. There is also

agreement that each program is benefitting through the use of teaming. However, each team admits to varying levels of acceptance and resistance to the teaming concept.

The IAT cited the "human element" as an explanation for some of the resistance found on their team, "...some people simply don't like working on teams." The IAT also noted that the diversity of their PIPT, having many members from several Government agencies, made true commitment to the PIPT a challenge.

The CT saw the resistance to their team coming from within their own parent organization. The team leader commented that the senior leadership in their parent organization did not place a lot of emphasis on the PIPT, nor did they willingly support the team when it needed to interface or coordinate with other teams in the organization. Research has shown that management support and their direct involvement in inter-team coordination is an important factor in team success.

Resistance on the GCCT is said to exist because some members of the organization, and some team members, are unwilling to give up old ways of doing business, preferring instead to do things "the way it has always been done", instead of trying new and innovative ideas. Several team members believe that age and experience have a significant impact on an individuals willingness to support the teaming concept. They stated that the younger members of the organization were generally supportive of the PIPT while some of the older members of the team had a more difficult time accepting the PIPT concept. Such resistance to full commitment has been found in the research to be an inhibitor to achieving high performance teams.

## 4. Team Management

The IAT and the CT exhibited strong characteristics of self-managed teams. Both teams have a great deal of input to all areas of team administration and management. These two teams develop their own tasks, establish agendas, and set team goals and objectives.

The GCCT uses more of a traditional management style. The GCCT depends on the Product Manager for direction, goals, and taskings. Once given the direction, the team establishes its own processes and sub-tasks to meet the Product Manager's requirements.

Each team leader's level of empowerment varied from team to team. The CT leader has a high level of empowerment and a great deal of authority to speak for his organization. The IAT leader is similarly empowered, as are the other action officers on the PIPT. The GCCT leader, while being fully empowered to run the PIPT, has limited authority in the area of decision making. The Project Manager in that organization is the final decision maker and authority on all program issues.

The way in which teams measure and define success also varies. The IAT defines success as being able to meet the timelines established by its master schedule. The CT identified meeting performance objectives and providing and integrating technology into the program as its primary measures of effectiveness. The GCCT, while still in the development phase of the program, considered meeting all cost, schedule, and performance criteria as its primary measurement of success.

## 5. The Role of the Project Director and Product Manager

All three teams defined the primary role of their PM (the Project Director for the IAT and CT, and the Product Manager for the GCCT) as, "...to provide focus and direction for

the team, establish priorities, interface with higher levels of management, and keep the team informed on matters which may impact directly on the PIPT." As such, neither the Project Director or Product Manager had much direct participation in the PIPT meetings.

Members of the IAT and the GCCT cited very limited direct involvement by the Project Director or Product Manager with the PIPT. Both teams noted that the team leader was the interface between "the boss" and the team and that, normally, higher level management did not attend PIPT meetings without an invitation from the team leader. The Project Director or Product Manager is only invited when specific guidance, clarification, or special emphasis for a particular issue is needed. The Project Director has even less direct involvement with the CT, attending only when invited. The primary role of the Project Director with regard to the CT is to establish priorities, provide guidance, and to interface with higher levels of management as needed to support the CT.

### 6. Decision Making and Conflict Resolution

The IAT and the CT use similar decision making and conflict resolution processes. With the team leader acting as a facilitator, issues or ideas are presented before the teams for discussion. The teams will generally reach consensus once all issues have been presented and all of the options presented have been explored. The team's recommendation or decision is then presented to the Project Director for final approval or comment.

If the teams cannot reach consensus on an issue, both the IAT and CT look to the team leader to resolve the disagreement. The team leader may decide to make the decision himself based on the information already presented, ask the team to re-examine the data, or defer the issue until new information can be made available. In rare cases, the team leader will

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present the issue to the Project Director for guidance or a decision.

The GCCT uses a more hierarchical decision making process. If the issue is technical in nature, the appropriate functional experts will study the issue and, upon reaching their own consensus, recommend an action to the team. The team, under the guidance of the team leader will then evaluate the "sub-team's" recommendation and either support it, recommend alternative actions, or voice its disagreement. The team leader attempts to gain team consensus, but if conflict results, he will make a decision himself then present his recommendation to the Product Manager noting the team's concerns and areas of disagreement. The Product Manager will then make a final decision or return the action to the team for further review. Non-technical issues are brought directly before the entire team for full discussion.

### 7.    Team Atmosphere

The atmosphere on both the IAT and the GCCT was described as formal, but open and participatory. Both teams have created an environment where members feel free to disagree and voice their opinions without fear of ridicule or attack by their fellow team members. The CT defines its team environment as "free flowing, open, and spirited." Like the IAT and GCCT, members are not afraid to voice their concerns or disagreements.

All three teams indicated that the level of participation varies and shifts according to the matter under consideration. Normally, persons with the most technical expertise or experience will take the lead on a discussion. The team leader acts as a facilitator keeping the team on track and ensuring they stick to the pertinent issues.

The agenda for PIPT meetings are driven by slightly different concerns for all three

teams. The IAT meetings are driven by the master schedule while CT meetings focus on issues raised by the Project Director at his weekly staff meetings. The GCCT follows an agenda based on the guidance and direction passed down by the Product Manager.

### 8. Implementation Challenges

Team responses varied with regard to the challenges faced in implementing their PIPT. The IAT cited "selling the PIPT concept" to outside agencies and "getting team members to feel ownership for the PIPT process" as their main challenges. The CT noted a lack of commitment by senior management within their parent organization as their primary road block to more successful teaming. Finally the GCCT believed that getting people in the organization and on the team to change the "cultural norms", forget the old ways of doing business, and give the PIPT process a fair chance as their biggest challenge.

All three teams agreed that a PIPT specific training program initiated at project start-up and sustained throughout the life of the program would be very beneficial to the program. However, team members noted that a comprehensive training program would be extremely difficult to implement due to time and resource requirements involved with such a  program.

### 9. Chapter Conclusion

All of the teams participating in this research have structured themselves around a core of functional area experts. However, the consistency of that core membership, and the team's reliance on temporary members to supplement the PIPT, varies. In general, team stability depends on the amount of skills and talent available to the program office, the current phase of the acquisition lifecycle, and the diversity of each team.

The degree of "self-management" also varies from team to team. The research

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revealed that a team's autonomy is determined, to a great extent, on the personalities of the PM and team leader. A team's processes, such as the way it makes decisions or resolves conflict, also reflects the personality and leadership style of its senior leadership.

The research also revealed that the PM, for all three teams, has very limited direct involvement in the PIPT meetings. Most members viewed the PM's limited participation as appropriate since they generally look to the PM for guidance and as a link to higher levels of management and organizations external to the program office, not as a team member.

In general, the working environment for all three teams is open and participatory, with different team members "taking the lead role" on issues pertinent to his or her area of expertise and influence. Team members noted that when individuals chose not to participate in team meetings, it was usually due to the individual's personality and not the atmosphere of the team meeting. At times, "hot" actions or time critical issues are resolved in off-line, limited participation meetings that by-pass the PIPT process. The research revealed varying degrees of this type of action among the three teams, but found the action is common to all teams.

Finally, the members of all three teams stressed the importance of gaining support for the teaming concept from all levels within, and external to, the program office. Team members commented that currently, limited support from some senior managers is an impediment to their success.

# V. CONCLUSION

Section "A" of this chapter presents key findings from the field study phase of this research. A summary of "Best Teaming" practices is listed in section "B" and section "C" identifies some potential areas for future research. The findings presented in the next section are divided into sub-sections that correspond to the primary and subsidiary research questions presented in Chapter I.

## A. FINDINGS

**1.    How are Program Integrated Product Teams (PIPTs) presently being organized, trained, and managed by the Army Acquisition Program Manager?**

### a.    *Organization*

The PIPTs that participated in this study are organized as a tailored mix of functional area experts who were selected by the Product Manager or Project Director for their experience or special skills. This finding is consistent with the literature's definition of how a PIPT should be structured. However, the field study revealed that program offices often supplement their teams, on an as-needed basis, with individuals from functional areas which are not represented on the team. The study also found that team members are sometimes moved from team to team as their special skills are needed. These actions, even if they are necessary, are inconsistent with good teaming practices and the concept of "dedicated" integrated product teams. Dedicated teams are co-located, consistent in membership, and are considered part of the program office. Disruption to the team structure should be minimized.

### b.　·　*Training*

None of the program offices studied in this research project have a PIPT specific training program in place. Program leaders are relying on the experience, education, and acquired leadership skills of individual team members to be sufficient for executing effective teaming. The maintenance of existing technical skills and the acquisition of new skills is the responsibility of the parent organization (in the case of civilian contractors and external government agencies participating on the teams) and the individual. Team members, and especially team leaders, are expected to educate themselves through reading, seminars, membership in professional organizations, and continued formal education.

### c.　*Management*

The study found that PIPT management styles varied based on the personality of the program manager and the culture of the organization.

Two of the teams examined in this research exhibited the characteristics of self-managed work teams. They perform their own task management, establish goals and objectives, determine work processes, and assume responsibility for all tasks normally performed by a functional area manager in a traditionally managed organization. These two teams are also empowered to act, and speak, on behalf of their organizations. The other team participating in this study is managed in a more traditional, hierarchical management style with the Product Manager assuming most of the management functions for the PIPT.

**2.　What is the Program Manager's leadership role with regard to his or her PIPT(s)?**

In all three PIPTs studied, the Project Director and Product Manager of each program

office have full responsibility for the PIPTs. They select the team members, establish the team's charter, provide guidance, assign team leaders, and give the teams varying degrees of authority and empowerment.

As a senior manager, the Project Director and Product Manager do not normally attend PIPT meetings. They empower the team leader, in varying degrees, to lead and manage their teams. The primary role of the Project Director and Product Manager is to represent the interests of the PIPT to higher levels of management and oversight, to be the team's voice and link with higher levels, and to keep the team informed of all actions and decisions which may impact on the program or project. The Project Director and Product Manager provide general leadership to the PIPTs. They motivate, provide guidance and direction to the team, resolve conflicts that cannot be settled by the team leader, and are the final authority for all recommendations made by the PIPT before implementation into the program.

**3.      What are the characteristics of successful PIPTs and what metrics are used by the PM and team leaders to evaluate effectiveness and success?**

Many of the characteristics of effective teams which were identified in the literature review were exhibited, in varying degrees, by the three teams participating in this research.

The team atmosphere was generally found to be open and involved. On all three teams examined, members felt free to raise issues, voice opinions, and disagree with other members of the team without fear of harassment or ridicule. Team leadership, while remaining the responsibility of the appointed team leader, will shift as the issues change with team members relying on those with the most experience or expertise to lead the discussion.

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Decisions are normally made by team consensus, with all members in general agreement on the recommendations, issues, or actions. At times, when issues must be resolved quickly and the team cannot reach consensus, the team leader will revert to a hierarchical management style of decision making. However, conflict among team members was found to be rare. The teams are generally able to work all issues until they can reach agreement. Sometimes matters will be deferred, time permitting, so the team can gather more data or research the issue further.

Process improvement, realized through team self-assessment and feedback from higher management, was found to be lacking. None of the teams in this study have a formal self-evaluation process nor do they receive formal, PIPT specific feedback, from the Project Director or Product Manager. Teams do implement "good ideas" when they are offered, however, none of the teams have a mechanism in place to review procedures and processes on a regular basis. Also, feedback from higher levels of management focuses only on the product being delivered by the team. There are no metrics that assess how well the team is functioning *as a team*.

The degree of ownership and commitment which team members feel for their PIPT was generally found to be high. Most of the team members and managers interviewed voiced strong support for the teaming concept and the other PIPTs in their organization. However, one of the team leaders cited a lack of commitment by the senior management, noting that it was difficult to get support from other departments within the organization since management did not consider the team a "high priority."

4.      **What are the challenges and impediments to implementing PIPTs?**

Some of the primary implementation challenges identified in the literature were: changing the organizational culture, organizing and structuring the team efficiently, establishing metrics to assess team effectiveness, destining an appraisal system that is acceptable to all PIPT members, avoiding the pitfalls encountered by other program managers, and the environment in which the PIPT must function.

The researcher found the organizational culture to be, for the most part, supportive and even enthusiastic toward the PIPT concept. There is, however, some resistance to the teaming concept in both programs studied. Management, and specifically the team leaders, are challenged to get everyone "on board" with the PIPT program.

The study also found that team managers and leaders feel they have a good balance and mix of expertise on their teams although, at times, teams have to be supplemented with additional, temporary personnel to help resolve complex or unusual issues. Team members are also generally satisfied with what the literature refers to as the "formal" (clear lines of authority, goals, missions, and charters) and "informal" (inter-organizational crossing of boundaries, voluntary cooperation between departments and teams) structures within the organization. Of the potential pitfalls identified in the literature (the committee mentality, settling for less than optimum solutions, overstepping the team's charter or authority, having too many PIPTs, poorly run meetings, and failure to invest in training), the lack of PIPT specific training was cited by all of the teams participating in the study as a significant shortcoming. As noted in the literature, programs that do not adequately invest in team training leave team members unprepared to deal with the "dynamics of the teaming process."

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Finally, the environment in which the PIPT operates can greatly influence the management processes and the degree of self-management for a particular PIPT. As seen in this study, the Contractor Team works in an environment that can more easily adopt the "good teaming" practices presented in the literature. The Contractor Team has a relatively narrow focus and a less diverse membership consisting primarily of engineers who have similar backgrounds, experiences, education, and frames of reference. Team members are also co-located and in daily contact with one another. Therefore, it is easier for the Contractor Team to manage themselves and reach consensus on most issues. In contrast, the Interagency Team members bring a wide range of talents, backgrounds, and experiences to the team which, while beneficial to the team in some aspects, presents more of a management challenge. It is, at times, more difficult for Interagency Team members to fully understand the issues, concerns, and organizational culture of the other agencies represented on the team. Also, the diversity of the Interagency Team and the geographical separation of its members makes it impractical to provide any significant cross training to its members. The Government-Contractor Combined Team has its own unique team building challenges. The size of the program and the limited number of technical experts available to serve as dedicated members for its three PIPTs require that teams restructure and are supplemented with non-permanent team members more often than what the literature says is consistent with good teaming.

## B.    SUMMARY OF "BEST TEAMING" CONCEPTS

Today's acquisition environment requires program managers to coordinate a multitude of complex tasks and to satisfy many significant, diverse, and competing interests. No longer

can programs be managed by using traditional, multi-level management structures if they are to keep pace with technological advancements and meet cost, schedule, and performance requirements. The following recommendations summarize the "Best Teaming" concepts identified during the research.

- Minimize supplementing teams with temporary personnel, maintain team integrity.

- Implement a PIPT specific training program for initial and sustainment training

- Shift away from a traditional, hierarchical management style and commit to team-based management.

- Provide the PIPT with the skills that qualify them to make decisions for the organization, then empower them to do so.

- Avoid going back to the "old ways of doing business" when under pressure to meet suspenses. Develop good systematic processes and stick with them.

- Implement a proactive, formal, team self-assessment mechanism focused on process improvement.

- Establish metrics that measure how well the team functions as a team.

- Maintain an open and participatory atmosphere at team meetings. Encourage disagreement, but ensure disagreement is resolved constructively.

- Develop decision making and problem solving processes built on team consensus.

- Commit to changing the organizational culture to a team based entity.

- Minimize off-line, or side meetings that bypass the PIPT process.

- PMs must keep teams informed about issues under discussion at higher levels of management which may impact on the PIPT.

- Team leaders must attempt to resolve conflict and make decisions at the lowest level, by those closest to the problem.

- PMs must spread their limited functional area talent and leadership equally among

teams.

## C.    RECOMMENDATIONS FOR FUTURE RESEARCH

### 1.    Research the Development of Metrics for Effective PIPTs

PMs currently measure the effectiveness of their PIPTs based on whether the product is developed within budget and on time while meeting all contract performance requirements. While cost, schedule, and performance are indeed critical evaluation factors for the overall success of the program, they do not evaluate how well the PIPT is functioning as a team. A potentially valuable research project would be to design a set of metrics that would enable the PM and the PIPT leader to assess the effectiveness of the PIPT processes and the value of that team to the program.

### 2.    Research The Development or Feasibility of a PIPT Specific Training Program

This study should attempt to create a training model that would provide PIPT members and team leaders with the basic interpersonal and teaming skills necessary to function effectively as an integrated product team. The study should focus on how PIPTs can get the essential team building training with minimal disruption to the program office. The researcher should attempt to identify training opportunities which are alternatives to "in-house" training provided by the program office.

### 3.    Conduct a Study to Determine How the PM Can Influence "Cultural Change" and the Acceptance of the PIPT Concept

This study should attempt to identify leadership skills and methods that would help PM influence a shift from a traditionally managed program environment to a team-based

organization that embraces the PIPT concept. The researcher should also attempt to identify the various forms of resistance to teaming, explain why that resistance exists, and how to mitigate the effects of that resistance on the program.

## 4.    Research the Development of a Self-Assessment Model for PIPTs

None of the teams that participated in this study have established any formal methods for self-assessment or continuous review and improvement of their processes. The researcher should attempt to create a self-assessment model that integrated team's functioning at the program level could use to develop and review team processes and procedures in a structured and systematic way.

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